DOCUMENT RESUME

ED 414 476 CE 075 407

AUTHOR	Bragg, Debra D.; Puckett, Paula A.; Reger, William, IV; Thomas, Helen Sue; Ortman, Joan; Dornsife, Carolyn
TITLE	Tech Prep/School-to-Work Partnerships: More Trends and Challenges.
INSTITUTION	National Center for Research in Vocational Education, Berkeley, CA.
SPONS AGENCY	Office of Vocational and Adult Education (ED), Washington, DC.
PUB DATE	1997-12-00
NOTE	163p.; For the 1993 survey, see ED 374 336.
CONTRACT	V051A30004-97A; V051A30003-97A
AVAILABLE FROM	NCRVE Materials Distribution Service, Horrabin Hall 46, Western Illinois University, Macomb, IL 61455; phone: 800-637-7652 (order no. MDS-1078, $12.50).
PUB TYPE	Reports - Research (143)
EDRS PRICE	MF01/PC07 Plus Postage.
DESCRIPTORS	*Consortia; Coordination; *Education Work Relationship; Educational Change; Educational Needs; Educational Objectives; Educational Policy; *Educational Trends; Field Studies; Followup Studies; High Schools; Instructor Coordinators; Needs Assessment; *Partnerships in Education; Program Implementation; Statewide Planning; *Tech Prep; Trend Analysis; Two Year Colleges; *Vocational Education

ABSTRACT

In 1993, 473 (55%) of the nation's 855 local tech prep consortia were surveyed regarding tech prep's goals, policies, practices, and obstacles. The 397 responding consortia (response rate, 84%) were sent follow-up surveys in 1995. Responses were obtained from 339 (85%) of the consortia. The follow-up survey revealed the following: increases in the prevalence of tech prep consortia across the nation and involvement of businesses, community-based organizations, and postsecondary education in local tech consortia; a more diversified approach to public finance of tech prep; and continued strong support for tech prep among key stakeholder groups. Among the identified lingering challenges and barriers to tech prep's implementation were the following: lack of clarity and consensus surrounding tech prep's fundamental purpose; lack of involvement by four-year colleges and universities; and lack of instructor preparation in integrating academic and vocational subject matter. It was recommended that funding for tech prep be increased and that its concept be broadened to serve all students, not just the neglected majority. (Contains 37 references. Appended are the following: aggregated responses to the 1993 Tech Prep Implementation Survey; modifications to the survey; aggregated responses to 1995 survey responses; and site profiles.) (MN)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 414 476

NCRVE

National Center for Research in Vocational Education

University of California, Berkeley

TECH PREP/SCHOOL-TO-WORK PARTNERSHIPS: MORE TRENDS AND CHALLENGES

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☒ This document has been reproduced as received from the person or organization originating it

☐ Minor changes have been made to improve reproduction quality

- Points of view or opinions stated in this document do not necessarily represent official OERI position or policy

CE075 407

Supported by
the Office of Vocational and Adult Education,
U.S. Department of Education

BEST COPY AVAILABLE

This publication is available from the:

National Center for Research in Vocational Education
Materials Distribution Service
Western Illinois University
46 Horrabin Hall
Macomb, IL 61455

800-637-7652 (Toll Free)

TECH PREP/ SCHOOL-TO-WORK PARTNERSHIPS: MORE TRENDS AND CHALLENGES

Debra D. Bragg
Paula A. Puckett
William Reger IV
Helen Sue Thomas
Joan Ortman

University of Illinois at Urbana–Champaign (UIUC)

Carolyn Dornsife

University of California at Berkeley

National Center for Research in Vocational Education
University of California at Berkeley
2030 Addison Street, Suite 500
Berkeley, CA 94720-1674

Supported by
The Office of Vocational and Adult Education
U.S. Department of Education

December 1997

MDS-1078

FUNDING INFORMATION

Project Title:	National Center for Research in Vocational Education
Grant Number:	V051A30003-97A/V051A30004-97A
Act under which Funds Administered:	Carl D. Perkins Vocational Education Act P.L. 98-524
Source of Grant:	Office of Vocational and Adult Education U.S. Department of Education Washington, DC 20202
Grantee:	The Regents of the University of California c/o National Center for Research in Vocational Education 2030 Addison Street, Suite 500 Berkeley, CA 94720-1674
Director:	David Stern
Percent of Total Grant Financed by Federal Money:	100%
Dollar Amount of Federal Funds for Grant:	$4,500,000
Disclaimer:	This publication was prepared pursuant to a grant with the Office of Vocational and Adult Education, U.S. Department of Education. Grantees undertaking such projects under government sponsorship are encouraged to express freely their judgement in professional and technical matters. Points of view or opinions do not, therefore, necessarily represent official U.S. Department of Education position or policy.
Discrimination:	Title VI of the Civil Rights Act of 1964 states: "No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance." Title IX of the Education Amendments of 1972 states: "No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving federal financial assistance." Therefore, the National Center for Research in Vocational Education project, like every program or activity receiving financial assistance from the U.S. Department of Education, must be operated in compliance with these laws.

Related Readings from NCRVE

for **Current Status and Future Trends of Diversity Initiatives in the Workplace: Diversity Experts' Perspectives** (MDS-1082)

by Rose Mary Wentling and Nilda Palma-Rivas

Voices of Diversity in Programs Linking Education and Work *Briefs*

What do students think about the new programs that link education and work? What kind of learning do they get in these programs? How does gender influence their perspectives? This series of briefs highlights findings derived from a national study of students enrolled in programs structured by current education reform ideas. Of particular interest were the perspectives of students who are traditionally underrepresented—for example, female, Latino, and Asian. Practitioners, educators, policymakers, and researchers will gain a better understanding of students' high school and two-year college experiences from these briefs. By V. Hernández-Gantes.

931a: Learning from Students' Perspectives on Programs Linking Education and Work
931b: Quality Indicators of Programs Linking Education and Work
931c: Building a School Climate Conducive to Learning: Students' Perspectives
931d: Grounding Career Development in Authentic Learning Activities
931e: Connecting Education and Work Through Authentic Instruction
931f: Gender Perspectives on Programs Linking Education and Work
MDS-931/July 1997/$3.00 each

Diversity in the Workplace: A Literature Review

This report summarizes and synthesizes the literature on diversity in the workforce, supplying information to be used in developing new and unique approaches that fit the specific needs of particular organizations. The report includes the following sections: The Changing Society and Workforce; Reasons Organizations Are Managing and Valuing Diversity; Types of Training; Conducting Needs Assessments; How To Select a Trainer; Challenges and Obstacles of Diversity Training; Characteristics of Effective Diversity Training Programs; Evaluation of Diversity Training; and Future Trends in the Field. A glossary of terms and video list are also provided. By R. M. Wentling, N. Palma-Rivas.
MDS-934

Current Status of Diversity Initiatives in Selected Multinational Corporations

The purpose of this study was to provide information on the status of the diversity process in U.S. based multinational corporations that are committed to addressing diversity in the workplace. Eight diversity managers/directors at multinational corporations in Illinois were asked to provide information on their diversity initiatives; the planning, implementation and evaluation of the initiatives; factors assisting in their success; barriers; and future plans. The study revealed that an evolutionary pattern exists for diversity initiatives that has evolved from affirmative action to international diversity. Multinational corporations have a high degree of sophistication in their diversity initiatives, are doing much more than required by law, and it appears that these initiatives will continue to become even more important. By R. M. Wentling, N. Palma-Rivas.
MDS-936

☞ Call **800/637-7652** to order.
Check out NCRVE's complete Products Catalog at http://ncrve.berkeley.edu

TABLE OF CONTENTS

Acknowledgments i

Executive Summary iii

Introduction 1

- The Initial Tech Prep Implementation Survey in 1993 5

The Purpose of the Study 7

- The 1995 Follow-Up Survey 7
- The Field Studies 10

Discussion of Findings and Conclusions 15

- Characteristics of Tech Prep Consortia and Coordinators 16
- Goals, Elements, and Curriculum Reform 31
- Stage of Implementation of Tech Prep 56
- Barriers to Tech Prep Implementation 62
- Local Coordinator Recommendations for State and Federal Policy 71

Conclusions 78

References 83

Appendix A: Aggregated Responses to 1993 Tech Prep Implementation Survey 87

Appendix B: Modifications to the Tech Prep Implementation Survey 103

Appendix C: Aggregated Responses to 1995 Tech Prep Implementation Survey 107

Appendix D: Site Profiles 125

ACKNOWLEDGMENTS

As we reflect on the past several years of work that produced this report, we realize that we have many to thank. First, we express our sincere appreciation to the growing community of professionals who actively implement Tech Prep on a day-to-day basis. For our study, this group was ably represented by the nearly 350 Tech Prep coordinators whose thoughtful and candid responses made our follow-up survey a worthwhile endeavor. We are particularly indebted to five Tech Prep coordinators who hosted our field visits, answered a myriad of tedious questions, and shared incredible amounts of their time and talents. To Bonnie Bensonhaver, Debra Mills, Roger Johnson, Jim Schoelkopf, and Carole Swineheart, we share our deepest gratitude. At the state and national levels, we share our thanks for the continuous support we have received from the state Tech Prep coordinators and the U.S. Department of Education Tech Prep Team. Our study is richer in depth and quality because of the wisdom these state and national leaders contributed to our research.

At the NCRVE–University of Illinois site we thank our colleagues who contributed all along the way, particularly Mildred Griggs for her sagacious advice and James Layton for his expert computer skills. We also thank our researcher-friends in Texas, Carrie Brown, and Florida, Frank Hammons, who helped us understand the intricacies of Tech Prep implementation in their states and elsewhere. Finally, we thank our families and friends. Without their unconditional love and support, this research would not have been possible.

Debra D. Bragg
Paula A. Puckett
William Reger IV
Helen Sue Thomas
Joan Ortman
Carolyn Dornsife

EXECUTIVE SUMMARY

A few years ago, the National Center for Research in Vocational Education (NCRVE) published the results of our national study of Tech Prep implementation in the United States (Bragg, Layton, & Hammons, 1994). That report indicated that Tech Prep—a relatively new federal initiative designed to improve education by linking vocational subjects with rigorous academics and articulating to the secondary and postsecondary levels—had produced a number of *promising trends*, but that *lingering challenges* were evident. In 1993 and 1995, we surveyed local consortia to determine how Tech Prep implementation had changed and/or progressed over time. What we found was encouraging, but issues emerged. Between 1993 and 1995, the Tech Prep concept had spread to more schools and involved more students, but the extent to which it had produced changes in student outcomes was unclear. In 1996 and 1997, we conducted in-depth field studies in five Tech Prep consortia located in different regions of the United States to learn more about how various approaches to Tech Prep and School-to-Work (STW)—career-oriented programs supported by the federal School-to-Work Opportunities Act (STWOA) that were designed to assist youth to transition from school to careers—were advancing together. Through interviews and observations, these field studies gave us insights into various facets of Tech Prep implementation, furthering knowledge about changes that are being attempted but also accomplished.

Throughout all of our research, our overall objectives have remained consistent:

- To document the characteristics of local Tech Prep consortia and consortium coordinators.
- To describe the goals, elements, and outcomes of local Tech Prep initiatives.
- To determine the stage of implementation of local Tech Prep initiatives and selected components operating within those initiatives.
- To assess the barriers impacting local Tech Prep implementation.
- To identify recommendations that local coordinators perceive to be needed in state and federal policy.

Presented here are the methodologies and major findings of the 1995 survey and the five field studies. Throughout, comparisons are made to the 1993 survey and related literature on Tech Prep, STW, educational reform, and the like. Policy recommendations made by the local Tech Prep coordinators surveyed are reported at the conclusion of the report along with our own concluding remarks concerning the future of Tech Prep implementation in the United States.

More Promising Trends and Lingering Challenges

Reviewing the information we and others have collected since passage of the Tech Prep Education Act, it is evident that a great deal has been learned about Tech Prep implementation in the United States in a relatively short period of time. Still, with all that is known, important questions remain. When one scratches below the surface, what do we know about Tech Prep? What stands out as *promising* trends? The following are some of the most important trends:

- Tech Prep continues to expand across the nation, reaching well over half of the comprehensive high schools and the vast majority of community colleges in the United States.

- As Tech Prep implementation progresses, a wider net is cast in terms of local Tech Prep consortia membership, especially among businesses, community-based organizations, and postsecondary education. Involvement by four-year colleges and universities remains problematic, however.

- A more diversified approach to public finance of Tech Prep is evident, including more local and state funding; however, federal funds continue to dominate the financial resource base for local Tech Prep implementation.

- Support for Tech Prep remains strong among stakeholder groups that are key to its implementation and sustainability. These groups are vocational faculty, state agency personnel, local secondary and two-year college administrators, business/industry representatives, and students. Much less support was felt from four-year higher-education institutions toward greater acceptance of or involvement in Tech Prep.

- Most local coordinators support the notion of using Tech Prep as a foundation for STW, and there are signs that collaboration is occurring. Evidence of the marriage of Tech Prep and STW includes the increasing number of coordinators thinking about Tech Prep in terms of "all students," the expansion of business/education partnerships, and the provision for more work-based learning opportunities for more students.

Whereas these results are promising, *lingering challenges* remain:

- A lack of clarity and consensus is evident surrounding the fundamental purpose of Tech Prep, reinforcing concerns about how Tech Prep will fit with or contribute to related educational restructuring endeavors, including the STW programs targeted for all students.
- Many local coordinators have devoted the majority of their time in the past several years to Tech Prep but less and less of their salaries is paid by grants earmarked for it. Where an organization designates Tech Prep as an administrative priority, this trend may be fine. However, where an administrator's time and attention is routinely diverted to other tasks, Tech Prep is likely to suffer.
- Curriculum reform has extended into some aspects of postsecondary education (mostly community colleges), but Tech Prep continues to be primarily a secondary reform, potentially weakening student outcomes.
- With few exceptions, barriers thought to be the most serious in 1993 continued to be troublesome two years later. In fact, many concerns had heightened, not diminished, including issues surrounding joint planning time, secondary and postsecondary (two-year but also four-year) articulation, and instructor preparation to integrate academic and vocational subject matter.

Six *recommendations* were offered by local Tech Prep coordinators that deserve the attention of practitioners and policymakers at all levels:

1. Continue a distinct funding stream for Tech Prep to protect and nurture fledgling but also maturing Tech Prep initiatives.

2. Strengthen state and federal leadership for Tech Prep to ensure clear guidelines are provided to local leaders.

3. Clarify the uneasy relationship between Tech Prep and STW by encouraging logical relationships between Tech Prep and STW policies at the state and federal levels.

4. Broaden the concept of Tech Prep by adopting the view that Tech Prep should serve *all students*, avoiding targeting of the neglected majority.

5. Increase the *active involvement* of key stakeholder groups such as academic faculty, postsecondary faculty, counselors, and business/industry by finding rewards and incentives to encourage the participation of these groups.

6. Heighten awareness about Tech Prep. If the idea of Tech Prep has merit, as many believe that it does, it should become much more widely recognized and understood.

INTRODUCTION

Tech Prep is intended to integrate vocational subjects with rigorous academics and articulate secondary and postsecondary education. The intended result of this new combination of general and vocational education is an approach to education that is more relevant to and supportive of students' career goals.[1] Recognizing the potential of this relatively new federal initiative, the National Center for Research in Vocational Education (NCRVE) published the results of our study of Tech Prep implementation in the United States (Bragg, Layton, & Hammons, 1994). In 1994, we reported many hopeful trends with respect to Tech Prep implementation but some serious concerns were raised by local officials as well. Many of these early findings were corroborated by results of other national evaluations conducted in accordance with the National Assessment of Vocational Education (NAVE) by Boesel, Rahn, and Deich (1994) and by Mathematica Policy Research, Inc. (Silverberg, 1996; Silverberg & Hershey, 1995). We, therefore, concluded that Tech Prep was stimulating a number of *promising trends* but *lingering challenges* remained.

At the time we conducted our initial survey during the summer of 1993, only a couple of years had passed since federal support was made available for Tech Prep.[2] Whereas some Tech Prep initiatives had started prior to passage of the Tech Prep Education Act, Title IIIE of the Carl D. Perkins Vocational and Applied Technology Education Act, most were initiated in the 1990s once federal funds became available. Consequently, much of what we reported in 1994 represented progress associated with very early planning, development, and some initial implementation of new Tech Prep initiatives throughout the country.

To introduce our current research, it is important to summarize the major conclusions from our 1994 report, first noting several positive developments associated with Tech Prep at that time. These *promising trends* include the following:

---

[1] For further discussion of various Tech Prep philosophies, purposes, and approaches, see Bragg, Layton, and Hammons (1994), Dornsife (1992), Hull and Parnell (1991), Law (1994), and Parnell (1985).

[2] The Carl D. Perkins Applied Technology and Vocational Education Act of 1990, commonly known as Perkins II, included Tech Prep within the special projects section (Title IIIE). Federal funds were appropriated to the states to begin local planning and implementation of Tech Prep in July 1991. Although a few states were delayed in receiving federal funds because of issues with their states' plans for Perkins funding, by July 1992, all states had received federal funds to support local Tech Prep activities.

- As many as 50% of the nation's high schools were participants in some form or fashion in Tech Prep implementation in a local consortium, indicating dramatic growth in Tech Prep activity at the secondary education level from 1991 (pre-Perkins II) to 1993 (post-Perkins II).

- Broad-based representation was evident in most local Tech Prep consortia, and this phenomenon was thought to be highly useful in implementing local programs. During the 1992-1993 academic year, on average, a local Tech Prep consortium consisted of twelve high schools, two postsecondary schools, and ten private-sector business and industry firms. Some consortia, although not the majority, also involved labor organizations and public community-based organizations.

- A diverse set of student outcomes was given high priority for Tech Prep participants or graduates. The areas of academic skill attainment, employability skill attainment, and matriculation from high school to college were viewed as particularly important outcomes for Tech Prep students.

- A high level of support was perceived for Tech Prep by numerous stakeholder groups, particularly state agency personnel, vocational faculty, local two-year postsecondary administrators, business/industry representatives, local secondary administrators, students, and secondary school board members. One group was viewed as having only a "fair" level of support—four-year college/university personnel.

- Professional development of secondary and postsecondary personnel was conducted by nearly all consortia (which is not surprising since it is an "essential element" of the federal Tech Prep law). Still, it was encouraging to see that 90% of local consortia reported offering *joint* inservice training for secondary and postsecondary teachers. In a typical consortium, about one-half of the secondary and postsecondary vocational faculty, counselors, and administrators had participated in at least one Tech Prep inservice activity. Academic faculty were less likely to participate than vocational faculty, and postsecondary personnel were less likely to participate than their secondary counterparts.

- The hallmark of Tech Prep—formal articulation agreements—were well-established in vocational courses in most consortia. Articulation agreements at the program level or in academic areas were much less evident, however. Other key elements of Tech Prep showed encouraging signs of development, including the integration of academic and vocational education (primarily utilizing applied academics), the implementation of career clusters and career awareness activities, and the beginnings of work-based learning experiences for selected students.

In 1994, we also reported findings considered more disconcerting. We referred to these results as *lingering challenges* and they are summarized below:

- Most local coordinators worked on Tech Prep part-time or as only one facet of their regular jobs, indicating limited resources were dedicated to overseeing Tech Prep implementation and administration. Other resource constraints were evident and manifested in a widespread perception of lacking staff, time, and money for Tech Prep, particularly for collaborative planning that could lead to significant curriculum changes.
- The purpose of Tech Prep lacked clarity as evidenced by the broad and conflicting goals supplied by respondents. Utilizing 1993 survey findings, we tried to determine whether respondents thought Tech Prep was for *all students*, a subset of students known as the *neglected majority*, or for still another group. Whereas the respondents indicated that equal access for all students was a priority[3], nearly a majority reported dedicating resources to the middle two quartiles of students in academic ability, as envisioned by Parnell (1985) in his book *The Neglected Majority*. Apparently, Parnell's persuasive argument resonates with Tech Prep consortia throughout the nation. However, it is noteworthy that some consortia have adopted different perspectives toward the appropriate student population(s) for Tech Prep. Some have directed Tech Prep to all students; others have targeted it to either higher-achieving or lower-achieving students. Much of this variation is due to local circumstances, of course, but such findings raise questions about how Tech

---

[3] It is important to remember that one of the essential elements of Title IIIE, the Tech Prep Education Act, is to provide "equal access for special populations to the full range of Tech Prep programs, including the development of services appropriate to the needs of such individuals." To be in compliance with the law, local consortia may support the goal of providing *access* to Tech Prep but *target* a different group of students—the neglected majority—for enrollment in these programs. Indeed, the National Assessment of Vocational Education (NAVE) study of Tech Prep supports this conclusion (Boesel et al., 1994).

BEST COPY AVAILABLE

Prep fits with other systemic educational reforms, especially those intended for *all students* such as the reforms brought about by STWOA.[4]

- Few consortia were engaged in complex or far-reaching curriculum reform at either the secondary or postsecondary levels, as evidenced by the lack of reported involvement in advanced-skills courses, career academies, or interdisciplinary courses. About two-thirds of respondents planned to implement work-based learning, but only one-third had done so. On an encouraging note, the level of implementation of work-based learning was higher for consortia funded in 1991 than in 1992, showing that consortia with more time and resources were more likely to implement work-based learning. Furthermore, minimal levels of curriculum reform were reported at the postsecondary level, except for formal articulation agreements associated with vocational courses.

- The most serious barriers to the implementation of Tech Prep were those most deeply rooted in long-standing educational policy and practice—the continuation of tracking; the indelible structure of the school day; and teachers' beliefs that *theory* is for the college-bound and *practice* is for the rest. These fundamental concerns are evident in respondents' perceptions of the barriers to Tech Prep implementation, especially the lack of time for joint planning by academic and vocational teachers; issues with coordinating secondary and postsecondary programs; the failure of four-year colleges and universities to award college credit for applied academics or other Tech Prep courses; a poor image of vocational education, reflecting unfavorably on Tech Prep; and a lack of staff, time, and money. Indeed, these barriers are so deeply ingrained in the fabric and structure of American education, particularly K-12 education, that they seem almost impenetrable. With limited resources, one wonders what level of impact an initiative such as Tech Prep can be expected to have on educational systems.

---

[4] The STWOA legislation was signed into law by President Clinton in May 1994. It calls for implementation of three key components designed to enhance STW transition for all students: (1) school-based learning, (2) work-based learning, and (3) connecting activities. Among other strategies, Tech Prep is mentioned as a promising practice with respect to STWOA.

The Initial Tech Prep Implementation Survey in 1993

The survey research we conducted in 1993 examined the goals, policies, practices, and obstacles local consortia were encountering in implementing Tech Prep. The data was supplied by local Tech Prep consortium coordinators (and occasionally by their designees). Consequently, the information obtained by the survey was reflective of the knowledge, attitudes, and beliefs of this group. The primary goal of our survey research in 1993 was to describe how Tech Prep policy was implemented by local consortia, including examining the ways in which varying contexts (e.g., settings, funding) interact with Tech Prep development.

The following were the five major research questions for the study:

1. What are the characteristics of Tech Prep local consortia and their coordinators?
2. What are the goals, elements, and outcomes of local Tech Prep initiatives?
3. At what stage of implementation are local Tech Prep initiatives and the selected components operating within these initiatives?
4. What barriers are perceived to impact local Tech Prep implementation?
5. What do local coordinators perceive to be the needed changes in state and federal policy?

Our earlier report synthesized the federal legislation on Tech Prep, reviewed extant literature pertaining to its implementation, and provided descriptive findings associated with the study's five research questions.[5] Since our report on local implementation was one of the first to be published on this concern,[6] it was *not* filled with complex statistical results, but written in a concise and straightforward manner for an audience composed largely of education practitioners. Policymakers at all levels of government were another important audience for the report.

---

[5] For an in-depth discussion of the origins of Tech Prep, early research on Tech Prep implementation, and findings associated with Tech Prep implementation during the first few years of federal Tech Prep funding, we refer you to our initial report, *Tech Prep Implementation in the United States: Promising Trends and Lingering Challenges* (Bragg et al., 1994).

[6] Only the National Assessment of Vocational Education (NAVE) study of Tech Prep implementation (Boesel et al., 1994) existed at the time our NCRVE report was published in 1994. The first comprehensive report on Tech Prep implementation conducted by Mathematica Policy Research, Inc., was not published until 1995 (Silverberg & Hershey, 1995).

The 1993 Survey Methods

Our initial survey involved a sample of the nation's total 1993 population of 855 local Tech Prep consortia. Sample selection occurred on a state-by-state basis, ensuring that all the states had at least one local consortium represented in the total sample.[7] In total, 473 local consortia were surveyed, representing 55% of all local Tech Prep consortia in the nation as of June 1, 1993. Of the 473 consortia, 397 provided usable questionnaires that were included in the final data analysis, yielding a response rate of 84%.

The mail questionnaire used for our initial study was a sixteen-page booklet of closed- and open-ended items organized into five parts: (1) Tech Prep goals and outcomes, (2) the stage of implementation of Tech Prep, (3) barriers to Tech Prep implementation, (4) Tech Prep consortium characteristics, and (5) Tech Prep coordinator background. To establish content validity, the instrument was reviewed by a national panel of Tech Prep experts. Then, during the spring of 1993, it was pilot tested with a small sample of local and state Tech Prep coordinators in California, Illinois, Maine, New York, Texas, and Virginia. Reliability estimates for subscales in the questionnaire ranged from .82 to .94, suggesting a high level of reliability.

During the summer of 1993, we administered the mail questionnaire in four waves, based on procedures developed by Dillman (1978). In wave one, the questionnaires were mailed to the total sample of 473 local consortium coordinators who were asked to return it by June 30, 1993. In wave two, a postcard was mailed to all coordinators reminding them to return the instrument by June 30, 1993. In wave three, at approximately one week prior to June 30, another postcard was mailed to all coordinators who had not yet responded. Also at this time, state coordinators were notified of their state's overall response rate and asked to encourage 100% participation in their states. In wave four in early July, all nonrespondents were mailed a replacement questionnaire and asked to complete it by July 25, 1993. Throughout the month of August, telephone follow-up was conducted and surveys were accepted. On September 1, 1993, the data collection phase was concluded.

---

[7] For an in-depth discussion of the sample selection procedure and other aspects of the methods used for the 1993 survey, see Bragg et al., 1994.

Data analysis consisted of computing simple descriptive statistics followed by inferential statistics such as the Pearson Product-Moment correlation and factor analysis. Open-ended items were analyzed using an inductive content analysis procedure described by Guba and Lincoln (1985). Appendix A presents aggregated responses to each item on the 1993 survey, along with a response rate for each item.

THE PURPOSE OF THE STUDY

Following the 1993 survey, we continued studying Tech Prep implementation, expanding our study to include quantitative and qualitative research methods. In 1995, we conducted a follow-up survey of the same group of consortia sampled in 1993 to determine how these local Tech Prep consortia had changed and/or progressed. In 1996 and 1997, we conducted in-depth field studies involving five local Tech Prep consortia located in different regions of the United States. This aspect of the research provided more detailed understanding of how Tech Prep implementation was advancing at the local level. To ensure that readers have a clear understanding of the research methods used, we first present the procedures pertaining to our follow-up survey, then we review the qualitative, field study methodologies.

The 1995 Follow-Up Survey

First, in 1995, we conducted a follow-up survey with the same sample of local Tech Prep consortia that responded to our initial survey in 1993. Of the total group of 397 consortia responding in 1993, 339 responded again in 1995, yielding an 85% response rate. Nearly 60% of the 1995 respondents were the same people who completed our survey in 1993. This high response rate ensured that similar information was provided in 1993 and 1995, helping us better understand how implementation had progressed over that two-year time period. Table 1 shows the survey population, sample, and response rate by state for both surveys.

Table 1

Survey Population, Sample, and Response Rate by State for 1993 and 1995

State	State Consortia as of June 1993	Consortia Surveyed in 1993	Number/Percent Responding in 1993 & Resurveyed in 1995	Number/Percent Responding in 1995
Alabama	32	16	12 (75%)	10 (83%)
Alaska	3	3	2 (67%)	1 (50%)
Arizona	14	7	6 (86%)	4 (67%)
Arkansas	13	7	7 (100%)	4 (57%)
California	70	35	30 (86%)	27 (90%)
Colorado	20	10	7 (70%)	4 (67%)
Connecticut	14	7	4 (57%)	4 (100%)
DC	1	1	1 (100%)	1 (100%)
Delaware	1	1	1 (100%)	1 (100%)
Florida	17	9	7 (77%)	6 (86%)
Georgia	58	29	24 (83%)	22 (92%)
Hawaii	1	1	1 (100%)	1 (100%)
Idaho	6	6	4 (66%)	4 (100%)
Illinois	40	20	20 (100%)	16 (80%)
Indiana	18	9	7 (83%)	7 (100%)
Iowa	6	6	5 (83%)	3 (60%)
Kansas	6	6	4 (66%)	4 (100%)
Kentucky	44	22	16 (73%)	12 (75%)
Louisiana	13	7	7 (100%)	5 (71%)
Maine	6	6	6 (100%)	5 (83%)
Maryland	16	8	8 (100%)	6 (75%)
Massachusetts	11	6	5 (83%)	4 (80%)
Michigan	39	20	17 (85%)	15 (88%)
Minnesota	24	12	9 (75%)	9 (100%)
Mississippi	14	7	7 (100%)	7 (100%)
Missouri	12	6	5 (83%)	5 (100%)
Montana	4	4	3 (75%)	3 (100%)
Nebraska	6	6	6 (100%)	6 (100%)
Nevada	3	3	3 (100%)	3 (100%)
New Hampshire	4	4	3 (75%)	2 (67%)

Table 1 (cont.)

State	State Consortia as of June 1993	Consortia Surveyed in 1993	Number/Percent Responding in 1993 & Resurveyed in 1995	Number/Percent Responding in 1995
New Jersey	21	11	9 (82%)	7 (78%)
New Mexico	13	7	7 (100%)	6 (86%)
New York	28	14	11 (79%)	11 (100%)
North Carolina	47	23	23 (100%)	23 (100%)
North Dakota	1	1	1 (100%)	1 (100%)
Ohio	13	7	7 (100%)	7 (100%)
Oklahoma	10	10	8 (80%)	5 (63%)
Oregon	20	11	9 (82%)	7 (78%)
Pennsylvania	22	11	11 (100%)	10 (91%)
Rhode Island	1	1	1 (100%)	1 (100%)
South Carolina	16	8	7 (88%)	5 (71%)
South Dakota	4	4	4 (100%)	3 (75%)
Tennessee	15	8	6 (75%)	5 (83%)
Texas	25	14	11 (79%)	11 (100%)
Utah	11	6	4 (67%)	2 (50%)
Vermont	9	9	6 (67%)	4 (67%)
Virginia	34	17	13 (76%)	11 (85%)
Washington	18	9	8 (89%)	7 (88%)
West Virginia	11	6	5 (83%)	4 (80%)
Wisconsin	16	8	6 (75%)	5 (83%)
Wyoming	4	4	3 (75%)	3 (100%)
TOTAL	855	473	397 (84%)	339 (85%)

The mail questionnaire used for the 1995 follow-up survey was very similar to the initial instrument, although some changes were made. One important reason for modifications was to take into account changes that might have occurred in Tech Prep because of the introduction of the federal STWOA of 1994. With the infusion of new funding to stimulate systemic reform in school-based learning, work-based learning, and connecting activities, we hypothesized that Tech Prep programs may have changed to incorporate STWOA components. Other changes were made simply to update and improve the newer version of the questionnaire. For a listing of specific changes made to the 1993 survey to create the 1995 follow-up survey instrument, see Appendix B.

Administration of the follow-up survey in 1995 followed the exact same protocol as for the 1993 survey. Again, the first copy of the survey was mailed in June 1995 with three waves following it to maximize response rate. In September 1995, the follow-up survey was concluded. Appendix C contains aggregated responses and response rates for each item in the 1995 survey.

The Field Studies

In 1996 and 1997, we employed individual and cross-comparative case study methods to conduct field work in one purposively selected Tech Prep consortium in Florida, Illinois, Ohio, Oregon, and Texas. The data collection took place beginning early in the 1996-1997 academic year and continued into the summer of 1997. The sample of five states included was selected purposively based on expert opinion, document review, and in-depth investigation of the Tech Prep and STW policies and practices in all 50 states.[8] A panel of experts was used to review and verify the selection procedure. The five selected states (and sites within) are geographically distributed throughout the United States, and they are all actively engaged in Tech Prep and STW implementation, although they are at different stages of implementation of the key components of both Tech Prep and STW (e.g., integrated curriculum, career guidance, work-based learning).

Within each of the five states, we selected one local Tech Prep consortium for more in-depth field study. The process of site selection was conducted in a careful, purposive manner. First, we conducted meetings (in person and by telephone) with knowledgeable representatives (or key informants). These meetings were designed to provide us with greater understanding of how Tech Prep and STWOA policies and practices were being conceptualized and implemented. We then reviewed Tech Prep and STW-related plans and documents (e.g., agendas, board minutes, brochures, newsletters, grant applications, end-of-year reports) to ensure that we had a clear and comprehensive understanding of what was being attempted in each state. We then sought nominations from Tech Prep experts within and outside of each state, asking for sites where local consortia were thought to demonstrate Tech Prep and STW goals and directives established by the state. We wanted sites where serious attention was paid to Tech Prep and STW, but not necessarily sites that were not facing challenges. We wanted to study sites that were still learning and advancing. We also asked nominators to recommend sites where they knew program evaluation and student outcomes assessment was being done in a serious and thoughtful manner. This criterion was *extremely* important because it ensured our accessibility to baseline information on student outcomes.

---

[8] Further information about Tech Prep in the fifty states was published in an earlier report by NCRVE entitled *Educator, Student, and Employer Priorities for Tech Prep Student Outcomes* (Bragg, 1997).

Finally, when one or more sites were identified in each of the five states, we interviewed (in person or by telephone) the identified local Tech Prep coordinators regarding their approach to curriculum, use of program evaluation/student outcomes assessment, engagement with STW initiatives, and interest in participating in our study. Our final selection of the five sites was made based on the aforementioned criteria as well as an attempt to identify distinctly different local approaches to Tech Prep curriculum, ranging from the use of the traditional Tech Prep Associate Degree (TPAD) in one site, to the use of dual credits/advanced placement in a second site, to implementation of youth apprenticeships in a third site, and to attempts at whole-school reform in the two remaining sites.

The five sites selected for the study were geographically distributed throughout the country, and they ranged in size and composition. Two sites were rural/small town, two were urban/large metropolitan, and one was suburban.[9] Appendix D provides a brief description of each of the five field sites but a brief synopsis of the each site follows:

- **The East Central Illinois Education-to-Careers Partnership** is headquartered at the Danville Area Community College in Danville, Illinois. The consortium is located in a rural region of east central Illinois, serving twelve high schools, a regional vocational school, and the community college. The Tech Prep initiative is directed at grades 9-14. Over 70 business and labor partners are involved, several of which offer youth apprenticeships to Tech Prep students. Although not all of this consortium's Tech Prep programs offer youth apprenticeships, many do. Tech Prep/youth apprenticeships are available in the areas of manufacturing, accounting, banking, health occupations, and food service. The consortium sponsors a Tech Prep Student Leadership organization that prepares students to be ambassadors for Tech Prep. The program provides special training in leadership, communications, and team building. In addition, peer mentoring is encouraged where a community college student is paired with a high school student. Since 1993, this consortium has been recognized as a demonstration site for the state of Illinois for Tech Prep and Education-to-Careers (the terminology used in Illinois for STW).

---

[9] The rural and urban sites dominated the sample because of the priority placed on serving these regions by federal legislation.

- **The Miami Valley Tech Prep Consortium** is headquartered at Sinclair Community College in Dayton, Ohio. This consortium is located in an urban area, but the large geographic region served is suburban and rural as well. Besides the community college, eight vocational education planning districts (involving 64 comprehensive high schools) are part of the consortium. Over 100 businesses (manufacturers, automotive dealers, hospitals) are engaged as well. This consortium is noted for its dedicated use of advanced-skills curriculum where students progress to higher levels of competence in academic and technical subjects at both the secondary and postsecondary levels (without the provision of dual credits). It is unique in that the consortium awards scholarships to most students who matriculate from the secondary to postsecondary level in a 2+2 curriculum sequence (grades 11-14). The University of Dayton participates in the consortium, offering students the opportunity to complete the final two years of college with a baccalaureate degree. This consortium has received state and national recognition, most notably the 1996 Parnell Tech Prep Award of the American Association of Community Colleges.[10]

- **The Golden Crescent Tech Prep/School-to-Work Partnership** is headquartered at Victoria College in Victoria, Texas. Like many of the partnerships in Texas, the region served by the Golden Crescent Partnership is expansive and primarily rural. It involves nearly 40 high schools or independent school districts

---

[10] In 1998, the American Association of Community Colleges (AACC) will be in its eighth year of giving the Parnell Tech Prep Award annually to three community colleges that provide exemplary Tech Prep programs involving area high schools and the local business community. All recipients of the award are selected by a panel of national experts who deem the site has "significantly enhanced the high school/community college/employer connection through the implementation of a Tech Prep curriculum" (AACC, 1997, p. 1).

(ISDs) directly, and another 20 high schools or ISDs that are outside its region. Since passage of STWOA, this consortium has developed a governance structure and supporting policies to fully combine Tech Prep and STW. Utilizing the curriculum structure required by the state of Texas, the Partnership has defined seven Tech Prep pathways that are approved by the Texas Higher Education Coordinating Board. These Tech Prep pathways are offered in such areas as electronics/instrumentation advanced technology, associate degree nursing, and microcomputer technology. Dual credit is a key feature of articulation agreements worked out between the area secondary schools and Victoria College; over twenty high-school vocational-technical courses provide college credit.

- **The Hillsborough School District/Community College Tech Prep Consortium** is located in a large and growing metropolitan area in central Florida. Thus far, twenty-six different programs of study have been articulated between Hillsborough Community College and the fifteen comprehensive high schools, one technical high school, one alternative high school, and several adult vocational centers that feed students into the college. At the secondary level, the School District of Hillsborough County has designated several courses of study that involve Tech Prep, including the *Tech Prep* course of study, where students take appropriate community/postsecondary preparatory courses, plus applied technical courses; the *College/Tech Prep* course of study, where students meet college prep and Tech Prep requirements; and the *Florida Academic Scholars/Tech Prep* course of study, where students take specific academic course requirements along with Tech Prep to qualify for college scholarships. In 1997, this consortium received national acclaim when it won the Parnell Tech Prep Award from the American Association of Community Colleges (AACC).

- **The Mt. Hood Regional Tech Prep Consortium** is headquartered at Mt. Hood Community College in Gresham, Oregon. Located in a suburb of Portland, this consortium serves eight high schools that feed into Mt. Hood Community College. The consortium has a history with Tech Prep that predates the federal Tech Prep Education Act, contributing to its selection as a national demonstration site for Tech Prep for the U.S. Department of Education and a Parnell Tech Prep Award winner from the AACC in the early 1990s. Currently, several high schools engaged in the consortium are involved in whole-school reform to meet STWOA requirements. Noteworthy among these is Reynolds High School, where the high school learning environment has been re-organized around four houses or families, named after the great mountains that surround the community—Mt. Adams, Mt. Hood, Mt. St. Helens, and Mt. Jefferson. Goals of the house organization include personalizing student learning experiences, assisting students in achieving academic and career goals, supporting students in making successful transitions, assisting students in meeting Certificate of Initial Mastery (CIM) standards, and integrating instruction that connects learning to real-world application (Reynolds High School, 1997).

Two field visits were conducted with each site during the 1996-1997 academic year. During our initial site visit conducted in the fall of 1996, in-depth personal interviews were conducted with secondary school and community college personnel (administrators, teachers, counselors), employers, and other key informants. Care was taken to identify persons highly involved with and supportive of Tech Prep and STW as well as those more peripheral and/or skeptical. Whereas the personal interviews were relatively informal and unstructured, they displayed a close relationship to the three major research themes that provided the over-riding focus for the field studies. These themes (posed as questions) were as follows:

- **How is Tech Prep conceptualized?** What are the distinguishing features (goals, elements, key components) of Tech Prep? How have these components evolved over time? How does Tech Prep relate to STW and other educational reforms? What barriers or obstacles influence implementation of Tech Prep, STW, or other educational reforms?
- **How is Tech Prep curriculum structured?** Where does Tech Prep fit with respect to college prep, general education, vocational education, or other existing options (tracks)? For the various options, but particularly for Tech Prep and STW, what are the predominant characteristics, goals, and aspirations of students served?
- **How are the experiences and outcomes of students participating in Tech Prep and/or STW assessed?** Drawing upon local evaluative information, what is known about the patterns of experiences and outcomes of students who participate in Tech Prep and/or STW?

In the spring or summer of 1997, another round of in-depth interviews was conducted, this time with a small cross-section of students (approximately 30 per site), ensuring gender, racial, and ethnic diversity. The majority of these students had matriculated (or had intention to do so) from high school to community college in a sequence of courses and experiences associated with Tech Prep/STW. A few interviews were conducted with students who had not participated in Tech Prep/STW to provide comparative data. The interview questions explored students' preparedness for the transition from high school to college and their satisfaction with the school/collegiate experience, progress toward completing a credential, perceptions of the relationships between school/college and work, and perceptions of outcomes attained or anticipated. The student interviews occurred individually or in small groups, lasting from 30 to 60 minutes. Also, students completed a brief questionnaire to provide additional information about their STW transition experiences.

In terms of data analysis, the field data was analyzed to unveil either unique or pervasive themes and patterns pertaining to the research objectives, first within sites and then across sites. Preliminary data analysis was first completed for each site, revealing five unique case studies. Subsequent data analysis focused on cross-site comparisons to identify important similarities and differences in results across the sites (Merriam, 1988). Cross-site comparisons are highlighted in this report.

DISCUSSION OF FINDINGS AND CONCLUSIONS

In this section, we reveal major findings and conclusions from the 1995 follow-up survey and compare those results to our earlier 1993 report. We also discuss how the survey findings relate to the field studies conducted during the 1996-1997 academic year in the five selected sites of Danville, Illinois; Dayton, Ohio; Victoria, Texas; Tampa, Florida; and Gresham, Oregon. Together, the national survey findings as well as the field studies help to describe how Tech Prep implementation is progressing in the United States. The information collected for the field sites is particularly useful in showing how Tech Prep has developed in recent years, once the federal STWOA legislation took effect.

These findings are organized according to the five major research questions that framed our initial report on *Tech Prep Implementation in the United States*. First, the findings related to Tech Prep consortia and coordinators are discussed. Then, we present the goals, elements, and foci of curriculum reform. Third, we describe the level of implementation of various key components of Tech Prep. Fourth, the barriers to local Tech Prep implementation are discussed. Finally, we present recommended changes to state and federal policy provided by the local Tech Prep coordinators.

Characteristics of Tech Prep Consortia and Coordinators

This section presents findings related to the composition of consortia and funding for Tech Prep implementation. Coordinator characteristics are also presented to portray the characteristics of individuals who guide local Tech Prep efforts. Results from our field studies are presented to supplement the survey findings.

Organizational Composition of Local Consortia

In both the 1993 and the 1995 surveys, respondents were asked to estimate the number of organizations involved in a local Tech Prep consortium based on the following categories: secondary schools, two-year postsecondary schools, four-year postsecondary schools, private-sector business and industrial firms, labor organizations, public community-based organizations, student leadership organizations, and other. In 1995, respondents were also asked to indicate the number of organizations in each category that were actively participating (defined in the survey as organizations that had students enrolled, actively involved in, and benefiting from a Tech Prep core curriculum.) Results show the number of organizations involved in a Tech Prep consortium increased in all categories (e.g., schools, colleges, businesses) from 1993 to 1995, although most of the changes were not dramatic (see Table 2). The largest increases were registered in the category of secondary schools where the mean increased from 12 to 14 from 1993 in 1995 and in business and industry where the average went from 23 to 27. Similar increases were noted in our five field sites. In these, new partnerships were formed with schools and businesses, partly in an effort to expand the scope and impact of Tech Prep but also to better accommodate expectations associated with the STWOA legislation (e.g., 50% membership representation by the private sector on governing boards).

Table 2
Organizations Participating in Local Tech Prep Consortia in 1993 and 1995

	Total Number in Consortium (1992-1993)				Total Number in Consortium (1994-1995)				Number Actively Participating in Tech Prep (1994-1995)			
Organizations	No. & Percent of Total Sample	Mean	Median	SD	No. & Percent of Total Sample	Mean	Median	SD	No. & Percent of Total Sample	Mean	Median	SD
Secondary Schools	364 (92%)	11.60	8.00	11.15	325 (96%)	14.28	11.00	12.77	317 (94%)	11.22	8.00	9.60
Two-Year Postsecondary Schools	349 (88%)	1.78	1.71	1.71	327 (96%)	1.79	1.00	1.73	313 (92%)	1.81	1.00	2.16
Four-Year Postsecondary Schools	152 (38%)	1.64	1.00	1.19	171 (50%)	1.99	1.00	2.13	117 (35%)	1.62	1.00	2.05
Private-Sector Business and Industry	287 (72%)	22.78	10.00	45.24	223 (66%)	26.91	15.00	49.03	241 (71%)	17.67	10.00	21.30
Labor Organizations	91 (23%)	2.31	1.00	2.54	100 (29%)	2.52	1.50	3.53	98 (29%)	1.66	1.00	1.01
Public Community-Based Organizations	164 (45%)	5.00	3.00	6.20	130 (38%)	5.75	3.00	8.56	132 (39%)	4.02	2.00	5.64
Student Leadership Organizations	83 (21%)	4.36	2.00	4.62	80 (24%)	6.36	4.00	9.78	73 (22%)	3.73	3.00	3.87

Looking at the 1995 results only, we see a difference in the *involvement* of various organizations as compared to *active participation*. In all categories except one—two-year postsecondary schools (where students can matriculate to institutions other than the one in their district/region in order to participate in Tech Prep), fewer institutions were thought to be actively participating than merely involved. This finding is consistent with a conclusion drawn by Silverberg (1996) that "All Tech-Prep member districts—and their schools—do not participate in Tech-Prep to the same degree. . . . 'Membership' in a consortium reflects varying approaches to and levels of involvement in Tech-Prep implementation as well as different stages of development" (p. 13).

Based on estimates of the number of secondary and two-year postsecondary organizations reported in the 1993 survey, our previous NCRVE report indicated that well over three-fourths of the nation's two-year postsecondary schools had some level of involvement with a Tech Prep consortium, and approximately one-half of the nation's secondary schools were involved in some manner. Similar estimates were reported by Mathematica Policy Research, Inc. for the national Tech Prep evaluation.[11] Silverberg (1996) estimated that, in 1993, 51% of all secondary districts had some level of involvement in Tech Prep. By 1995, her estimate had increased to 63%, based on data collected during the 1992-1993 academic year. Our 1995 survey showed a continual increase in involvement by secondary schools (increasing by three schools per consortium over the two years between 1993 and 1995), but the number of postsecondary schools leveled off over that period due to the fact that a large proportion were already involved in 1993.

Funding for Local Tech Prep Initiatives

Two-thirds of local consortia initiated planning and implementation for Tech Prep during the first two academic years—1991-1992 and 1992-1993—that federal Tech Prep funds became available. Respondents reported that 34% of the Tech Prep programs were started during the 1991-1992 academic year and 33% began in the 1992-1993 school year. Only 12% reported beginning Tech Prep initiatives as early as 1990-1991. In prior years, there were minimal numbers (less than 1% per year) reporting the initiation of Tech Prep.

---

[11] For further data on organizational involvement and student enrollment in Tech Prep, readers are encouraged to examine the 1996 national Tech Prep evaluation prepared by Mathematica Policy Research, Inc. (Silverberg, 1996).

In the more recent academic years of 1993-1994 and 1994-1995, 11% and 7% of the respondents reported the onset of Tech Prep programs.

Not surprisingly, the years when Tech Prep programs began correspond closely to the years when federal Tech Prep monies became available. Forty percent of the respondents reported that funds were first received during the 1991-1992 academic year; another 42% first received funds in 1992-1993; and 14% of respondents related that Tech Prep federal funds were first made available to them during the 1993-1994 academic year, which indicates that a few consortia were included in our original sample in 1993 that had not received federal funding.

In 1993, nearly all respondents reported receiving federal funding for Tech Prep through the Perkins Title IIIE Act; however, a few indicated federal funding was no longer available to them. For those who did receive federal funding for Tech Prep, the average grant amount increased from $97,343 in 1992-1993 to $117,274 in 1994-1995 (see Table 3).[12] Most federal grants in 1994-1995 were around $100,000, which represented a fairly substantial increase over the typical federal Tech Prep grant in 1992-1993. Compared to other sources, federal grants far overshadowed other funding sources. However, many local consortia had created a more diversified funding base for Tech Prep in 1995 than in 1993.

---

[12] For more detailed information on funding, readers are encouraged to review the Mathematica Policy Research, Inc., national evaluation of Tech Prep report by Silverberg (1996).

Table 3
Average Funds to Local Consortia by Source for 1993 and 1995

	1993						1995					
Source of Funds	No. & Percent of Total Sample	Mean	SD	Median	Min.	Max.	No. & Percent of Total Sample	Mean	SD	Median	Min.	Max.
Tech Prep Grant Funds (Perkins Title IIIE)	373 (94%)	$97,343	$85,619	$70,800	$7,500	$625,000	289 (85%)	$117,274	100,446	$10100	$10,000	$984,400
Federal Grant Funds *other* than Perkins Title IIIE Tech Prep[a]	101 (25%)	62,221	82,026	30,784	2,000	500,000	78 (23%)	84,255	150,613	30,000	1,000	1,000,000
State Funds[a]	—	—	—	—	—	—	73 (22%)	76,181	197,316	30,000	2,000	1,500,000
Local Funds	145 (37%)	45,572	66,649	25,000	1,400	475,000	88 (26%)	67,955	125,450	24,000	600	800,000
Private-Sector Business & Industry	42 (11%)	9,228	11,858	5,000	500	45,000	39 (11.5%)	22,534	56,353	5,000	200	300,000
Private Foundations[b]	—	—	—	—	—	—	10 (3%)	27,650	29,339	17,500	2,500	100,000
Other	18 (5%)	29,744	40,145	10,000	500	140,000	16 (5%)	73,697	93,752	39,985	1,000	300,000
Total	383 (96%)	130,987	116,358	96,000	7,000	700,000	309 (91%)	180,990	215,559	120,000	7,000	1,625,000

Notes: [a] In the 1993 survey, this category was defined as "state or federal grant funds other than Perkins Title IIIE Tech Prep funds," so a separate category for "state funds" was not provided and comparable data is not available.

[b] In the 1993 survey, the category of "private foundations" was not provided, so comparable data is not available.

Approximately one-fourth of the respondents received funds from other federal government sources to support Tech Prep for the 1994-1995 academic year (about the same percentage as in 1992-1993); however, the average amount of funding from other federal sources had increased by more than one-third. Also in 1995, about one-fourth of the respondents reported financial support from local and state sources. Local funds received in the 1994-1995 school year have increased over 1992-1993 by about 50%, on average. In either time period, far fewer respondents reported receiving private dollars to support Tech Prep activities than public funds. However, when private funds were reported, a noteworthy increase was evident. The average level of private funding rose from approximately $9,000 to $22,000. But, again, these contributions are far less than the average level of funding from local, state, or federal sources.

Funding of the Field Sites

Observations in our five field sites show how funding has shifted from the time initial Tech Prep grants were awarded to local consortia, usually in 1991 or 1992, to the present. As the years passed, several of our field sites were recognized as demonstration sites, meaning they had additional state or federal funds (beyond planning or implementation) to disseminate "best practices" to other consortia. For example, in addition to its base grant, the East Central Illinois Education-to-Careers (ETC) Partnership received numerous demonstration grants to encourage the development and sharing of good ideas with other schools in the state. This consortium also received special funds to extend Tech Prep into the workplace through the development of a Tech Prep/youth apprenticeship model. To sustain newly forming collaborations, the East Central ETC Partnership acquired business/industry support far exceeding the average level of private-sector funding reported by our 1995 survey respondents. Businesses in the Danville area, a region hard-hit with unemployment and corporate downsizing during the 1980s and early 1990s, contribute generously of personnel and facilities to assist various facets of the local Tech Prep initiative.

Other consortia, such as the Miami Valley Tech Prep Consortium and the Mt. Hood Regional Tech Prep Consortium, received federal grants that dovetail with Tech Prep, providing added momentum to curriculum restructuring. With respect to the Miami Valley Consortium, the National Science Foundation (NSF) awarded Sinclair Community College a five-year, $5 million grant to establish the National Center for Excellence for Advanced

Manufacturing Education (AME), a national curriculum initiative designed to re-create the infrastructure of technological education. The local coordinator and other Tech Prep leaders work closely with staff of the AME Center on curriculum reform in the manufacturing and related areas. At the Mt. Hood Consortium, a USDE-funded demonstration project, known locally as "Blueprint for Success," plays an integral role in curriculum redesign for Tech Prep in the region. A unique contribution of the Blueprint project is that it "aligns educational standards with industry skill standards [and] aligns a common core of academic standards to industry skill standards and higher education" (Mt. Hood Regional Tech Prep Consortium, 1996, p. 1). In the cases of Miami Valley and Mt. Hood, additional grants have unique but related purposes with respect to Tech Prep. In both locations, additional federal funds have provided necessary resources to develop innovative curriculum that probably could not have happened otherwise. Local officials are quick to point out how they have gained efficiencies and momentum by integrating related curriculum efforts.

In addition to federal funds, all the field sites were awarded STWOA planning and/or implementation funds to strengthen the relationship between Tech Prep and STW. Even though Tech Prep funds dwarfed the limited amount of STWOA dollars received at the local level, having the combined resources provided an incentive to connect the two initiatives, particularly in rural areas where resources (both money and people) are often scarce. In several cases, particularly rural areas, minimal alterations of the Tech Prep administrative structure resulted in a local STW governing board and other partnerships. Where this occurs, Tech Prep and STW, and the many stakeholders who support these initiatives, are nearly indistinguishable.

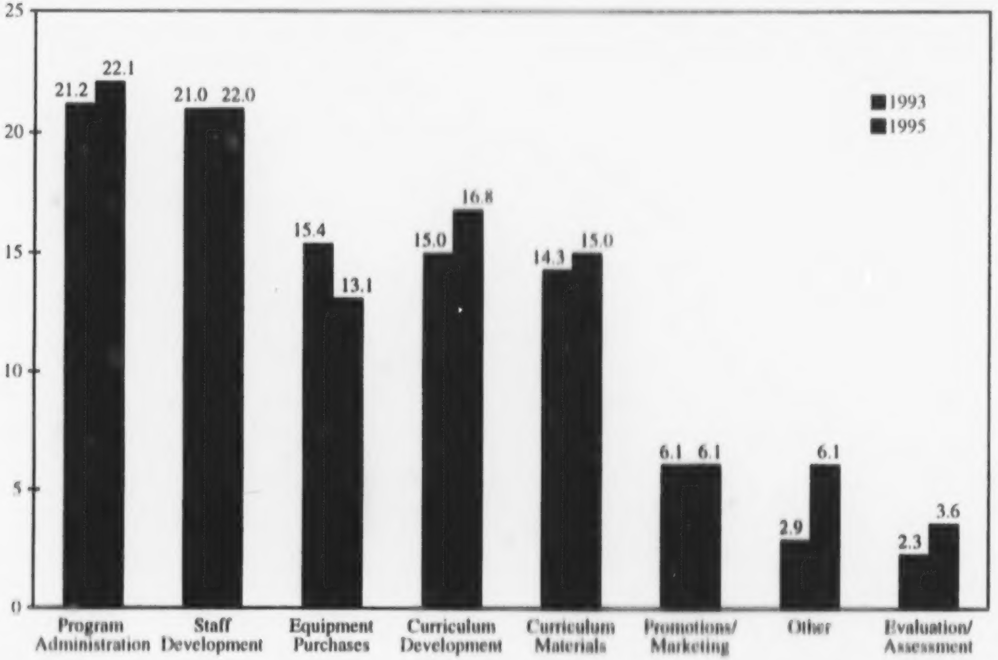
Local Expenditures

Finally, regarding funding, our 1995 survey asked where Tech Prep funds were spent. Respondents indicated most of the funds were used in the same five areas in 1993 and 1995: (1) program administration, (2) staff development, (3) curriculum development, (4) equipment purchases, and (5) curriculum materials. Of these five areas, our most recent findings show a slight decrease in funds spent on equipment and a small increase in the monies spent on curriculum development and materials purchases. In 1993 and 1995, the same percentage of funds were spent on promotion and marketing. Funds for evaluation and assessment increased only slightly from 1993 to 1995, and the amount of monies reported for the "other" category tripled, but still accounted for a minimal amount of total funding (see Figure 1). The distribution of funds was fairly indicative of spending by our five field sites, although two sites reported a higher proportion of funds going for program administration, and one of these and another site showed a substantially larger appropriation for professional development. Also, although the funding for evaluation was not ostensibly larger for our field sites than the general population of consortia nationally, the monies devoted to evaluation seemed to be used in more valuable ways to document program and student outcomes.

Level of Support from Interest Groups

In the 1995 survey, respondents were asked to indicate their perceptions of the level of support of several key interest groups. Vocational faculty topped the list of interest groups thought to offer the greatest support to the implementation of Tech Prep. Other interest groups seen as having a good to excellent level of support, based on a rating scale of 3.0 to 4.0 on a 5-point scale, were state agency personnel, local two-year postsecondary administrators, business/industry representatives, local secondary administrators, and students (see Table 4).

Figure 1
Percentage of Total Tech Prep Funds to Specific Activities for 1993 and 1995[1]



---

[1] The total responses do not add to 100% since respondents were asked to estimate the percentage of funds allocated during 1992-1993 and 1994-1995 to the following categories: program administration, curriculum development, staff development, promotions and marketing, equipment purchases, curriculum and instructional material purchases, program evaluation, student (learner) assessment, and other.

Table 4
Level of Support for Tech Prep from Interest Groups as Perceived by Local Coordinators in 1993 and 1995

	Level of Support (1992-1993)							Level of Support (1994-1995)						
Interest Group	Poor	Fair	Good	Excellent	NA	Mean	SD	Poor	Fair	Good	Excellent	NA	Mean	SD
Vocational faculty	1.3%	8.9%	38.5%	51.1%	0.3%	3.40	.70	0.9%	6.5%	40.1%	52.2%	0.3%	3.44	.66
State agency personnel	2.5%	9.2%	30.3%	53.7%	4.3%	3.41	.77	3.9%	10.7%	32.6%	49.9%	3.0%	3.32	.83
Local two-year postsecondary administrators	1.5%	11.4%	36.2%	50.4%	0.5%	3.36	.74	2.7%	14.0%	39.6%	42.9%	0.9%	3.24	.79
Business/industry representatives	2.3%	10.2%	37.6%	47.2%	2.8%	3.33	.76	2.7%	13.7%	44.8%	37.3%	1.5%	3.19	.77
Local secondary administrators	2.5%	17.0%	41.3%	39.2%	0.0%	3.17	.80	3.0%	17.2%	50.0%	29.3%	0.6%	3.06	.76
Students	2.0%	14.6%	48.3%	25.3%	9.7%	3.07	.73	1.2%	16.9%	55.5%	22.8%	3.6%	3.04	.68
Secondary faculty[a]								1.2%	18.7%	63.5%	16.3%	0.3%	2.95	.63
Secondary school board members	3.6%	20.6%	39.1%	31.2%	5.6%	3.04	.84	5.6%	22.3%	38.9%	20.8%	12.5%	2.85	.86
Counselors	5.3%	26.1%	43.0%	25.1%	0.5%	2.88	.85	5.1%	30.1%	45.2%	18.8%	0.9%	2.78	.81
Parents	2.3%	20.4%	48.5%	19.1%	9.8%	2.93	.73	4.7%	29.7%	44.2%	15.4%	5.9%	2.75	.79
Postsecondary faculty[a]								5.4%	32.7%	44.9%	16.4%	0.6%	2.73	.80
Academic faculty	4.3%	30.5%	43.7%	21.1%	0.5%	2.82	.81	3.8%	35.1%	49.0%	11.2%	0.6%	2.68	.72
Labor union representatives	7.5%	13.7%	13.2%	11.9%	53.6%	2.64	1.04	9.0%	15.6%	16.2%	12.6%	0.6%	2.64	1.08
College trustee	9.3%	14.5%	24.3%	20.2%	31.8%	2.81	1.01	12.2%	15.2%	26.0%	12.5%	0.9%	2.63	1.07
Four-year college/ university personnel	20.2%	25.6%	23.0%	6.9%	24.3%	2.22	.94	20.8%	29.8%	18.2%	8.3%	0.3%	2.20	.98

Note: [a]The categories of "secondary faculty" and "postsecondary faculty" were not included in the 1993 survey.

BEST COPY AVAILABLE

Other interest groups identified as being fair to good (2.0 to 3.0) in their support for Tech Prep were secondary faculty, secondary school board members, counselors, parents, postsecondary faculty, academic faculty, labor union representatives, and college trustees. While the mean level of support provided by four-year college/university personnel was within the fair to good range, there was a fairly large gap between the perceived level of support provided by the college trustees and the four-year college/university personnel. This finding corresponds closely to findings from the 1993 study. Little change has occurred in the support shown for Tech Prep by four-year colleges and universities, according to local coordinators.

Stakeholder Support of the Field Sites

Having the support of many different stakeholder groups was important to our field sites as well. Many of the same groups reported by the survey respondents to be supportive of Tech Prep were thought to be supportive by the five field-site coordinators. Personal interviews with representatives of groups such as vocational faculty, secondary and postsecondary administrators, business/industry representatives, and students suggested supportive attitudes toward Tech Prep. More skepticism was expressed by academic faculty, counselors, and parents. Generally, the more active the stakeholder groups were in implementation as planners, teachers, mentors, and the like, the more supportive they were of Tech Prep. Of course, it is difficult to know how this relationship came about. Did positive attitudes toward Tech Prep encourage some individuals and groups to get involved or did greater involvement lead to more positive attitudes? In reality, both of these scenarios are likely to occur. Tech Prep coordinators emphasize that "forced participation" fails to produce positive results, so involvement needs to be encouraged, not mandated.

Local Tech Prep Coordinator Profile

Tech Prep coordinators were working at their respective jobs for longer periods than was evident in 1993, which is understandable since Tech Prep has been in existence for more time (see Table 5). The percentage of coordinators who had been employed for three years or longer jumped from 14% in 1993 to 44% in 1995. Though some changes were evident in the funding sources for the Tech Prep coordinator position, the greatest change was seen in the number of positions that were *not* funded, but considered part of another regular job (usually an administrator position).

Table 5
Coordinator Work Experiences with Tech Prep in 1993 and 1995

Tech Prep Work Experiences	1992-1993 Percent n=397	1994-1995 Percent n=339
Number of Months a Tech Prep Coordinator		
1-6	6.0%	6.7%
7-12	20.4	1.0
13-18	18.9	7.5
19-24	22.2	6.2
25-30	15.6	7.4
31-36	2.5	17.6
36+	14.4	44.1
Organization Employing Immediate Supervision[a]		
Two-year postsecondary college	52.9	54.7
Secondary school	32.7	14.6
Other	17.6	9.8
Four-year postsecondary college	2.8	4.0
Business and industry	1.3	1.5
Local school district[b]	—	21.3
State or regional office of education[b]	—	4.9
Position Funded as		
Full-time	37.0	35.4
Part-time	38.0	24.5
Not funded (part of regular job)	20.8	32.0
Other	4.2	8.1
Hours Per Week Spent on Tech Prep		
1-20	44.3	42.0
21-40	32.5	36.6
41 or more	23.2	21.2

Notes: [a] Percentages do not add to 100% since multiple responses were permitted.

[b] The categories of "local school district" and "state or regional office of education" were not included in the 1993 survey.

In 1993, 21% of the coordinator positions were *not* funded, whereas in 1995, 32% had no funding, suggesting that at least some coordinator positions that received part-time funding in 1993 shifted to no funding by 1995. Interestingly enough, results show little change in the number of hours devoted to Tech Prep. In 1995, similarly to 1993, the majority of local coordinators reported spending over 20 hours per week on Tech Prep activities. The commitment to funding Tech Prep administration without external funds would appear to call for greater support from local entities. Whereas the average level of local funding increased fairly dramatically from 1993 to 1995 (see Table 3); only about one-quarter of the 1995 respondents indicated receiving *any* local funds, suggesting large disparities across the nation. This finding raises the question of how the cost of local administration is being paid when neither grant funds or local funds are utilized. Are Tech Prep coordinators contributing their personal time, over and above other duties? How long can Tech Prep coordinators be expected to make such commitments? How long can Tech Prep be sustained under these conditions?

Similarly to findings for 1993, two-year colleges were the largest employers of Tech Prep coordinators, with approximately 55% reporting their immediate supervisor to be in that type of organization. The other predominant organization employing Tech Prep coordinators was local school districts. Similar to our 1993 results, few coordinators were employed by secondary schools, state or regional offices of education, businesses, or four-year colleges (refer again to Table 5). Evident in this strategy is the awarding of responsibility and/or authority for administration to organizations that can provide a centralizing and coordinating function. Although difficult to measure, this aspect of Tech Prep implementation is important because of its contribution to more consistent quality and efficiency across schools and colleges.

Respondents were again asked in 1995 to indicate their previous professional work experience. Those who had prior administrative experience increased slightly from 53% to 56% from 1993 to 1995 (see Table 6). A slight increase was also documented in prior experience in business/industry employment from 28% to 31%. The percentage of coordinators previously engaged in vocational teaching, university teaching/research, or guidance/counseling fell slightly, with the drop in past vocational teaching being more pronounced.

Table 6
Tech Prep Coordinator Work and Educational Background in 1993 and 1995

Background	1992-1993 Percent n=397	1994-1995 Percent n=339
Previous Professional Work Experience[a]		
Educational administration	53.1%	56.2%
Vocational teaching	47.4%	39.8%
Academic teaching	33.5%	32.5%
Business/industry employment	28.5%	31.3%
University teaching/research	16.1%	13.1%
Guidance/counseling	14.6%	10.9%
Other	13.4%	8.5%
Highest Educational Degree Obtained[a]		
Advanced certificate or master's plus additional graduate study[b]	—	33.9%
Master's degree	63.5%	32.7%
Doctoral degree	20.2%	16.2%
Bachelor's degree	11.3%	14.1%
Associate's degree	2.8%	0.9%
Other	2.3%	2.1%

Notes: [a] Percentages do not add to 100% since multiple responses were permitted.

[b] The categories of "advanced certificate or master's plus additional graduate study" was not provided in the 1993 survey.

As a group, local coordinators were highly educated, with the majority having earned a master's degree or higher. In fact, the survey was changed between 1993 and 1995 to include a category on "advanced certificate or master's plus additional graduate study" to accommodate respondents who had given this information in 1993. By including the new category, we learned that approximately one-third of the respondents had an advanced certificate or master's coursework and beyond. Sixteen percent had obtained a doctoral degree. The percentage of respondents with a bachelor's degree increased from 11% in 1993 to 14% in 1995 (refer again to Table 6).

Coordinators of the Field Sites

In all cases, the coordinators responsible for Tech Prep in our field sites were well-educated, highly competent, politically connected (networked), and astutely savvy. In nearly all cases, the individuals held the position of Tech Prep coordinator since the time federal funds for Tech Prep flowed to their region in 1991 or 1992. The coordinators confessed that their understanding of the many dimensions of Tech Prep had grown enormously over these relatively short years. At first, they were relatively unaware of matters such as how to approach school restructuring, where to develop education and business partnerships, and why it is important to nurture STW transition. Only later, after having five or more years of experience, did they feel more confident in their ability to guide their local initiatives. In fact, most were highly sought-after speakers on critical issues pertaining to Tech Prep/STW implementation for state and national professional organizations such as the National Tech Prep Network (NTPN), the American Vocational Association (AVA), and the American Association of Community Colleges (AACC).

Contributing to their success as local Tech Prep coordinators, all had a variety of work experiences within education and elsewhere. In fact, having a varied work history was thought to contribute to mastering the complex and multiple-faceted dimensions of the Tech Prep coordinator job. Although not a criterion for selection for our field study, all sites administered Tech Prep grant(s) from the community college, therefore acting as fiscal agents for the local Tech Prep initiatives. Knowing this, it is interesting that three of the five Tech Prep coordinators in our study were hired by the community colleges because of their recent high school teaching experience. The sincere commitment these individuals, along with their colleges, showed for improving secondary education seemed to be an asset to the overall Tech Prep initiative, according to the community colleges employing them.

A fourth Tech Prep coordinator had recent community college teaching experience, but most of her current work with Tech Prep was done at the secondary level. While this coordinator maintained an office at the community college, she rarely used it, dedicating most of her time to working with the secondary district offices where policies affecting K-12 education were carried out. The one remaining coordinator spent the first part of his career in the military, more recently moving to public education. His recent experience in the military service is evident in his personal philosophy about education and his approach to management. Holding a staunch conviction to the need to make education more effective, this coordinator is committed to integrating regional Tech Prep and STW activities. For him, the challenge is to bring improved quality and efficiency to all of education by developing a coordinated Tech Prep/STW system for the region.

Goals, Elements, and Curriculum Reform

This section presents findings related to the goals and elements of Tech Prep as well as progress on curriculum reform. Included in this section are the primary goals and elements specified for Tech Prep, the vocational program areas involved, the student groups targeted, and the activities being addressed by curriculum reform at both the secondary and postsecondary levels. Survey respondents wrote brief narratives regarding how their consortium differentiates between Tech Prep and vocational education, enhancing our understanding of how Tech Prep fits with other curricular options or tracks. Similar questions were asked of various stakeholder groups involved in our field studies.

Primary Goal for Tech Prep

The 1993 survey asked respondents to write a brief statement about the primary goal of their consortium's Tech Prep initiative. A range of responses were received, and the statements were organized into five distinct categories. The five goals, gleaned from a content analysis of the respondents' 1993 narratives, were as follows:

1. *Articulate secondary and postsecondary education*—increase student matriculation into postsecondary education by formally articulating secondary and postsecondary education.

2. *Enhance workforce preparation*—prepare individuals for an increasingly competitive and technological workplace with education that combines academics, technologies, and career preparation.

3. *Give students multiple options beyond high school*—provide educational preparation that leads to multiple options beyond high school, including employment, two-year college, four-year college, or military service.

4. *Reach the neglected majority*—create educational opportunities to ensure the neglected majority receives better career and academic preparation by eliminating the general track.

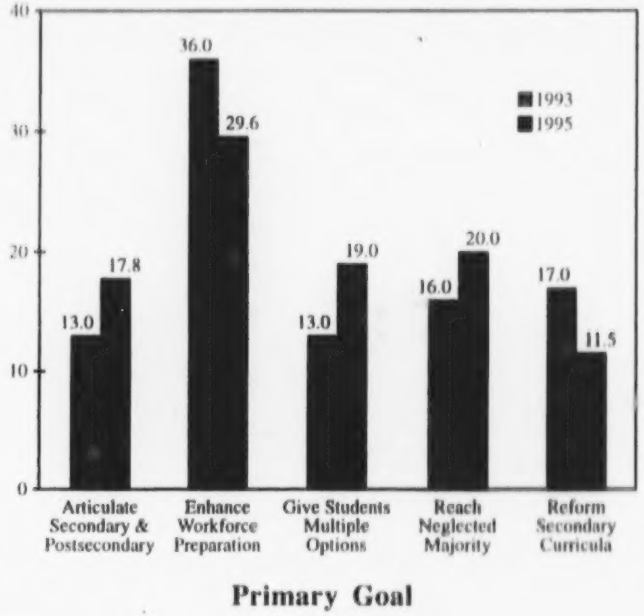
5. *Reform the secondary school curriculum*—institute systemic reform to change teaching and learning processes and institutionalize Tech Prep at the secondary level.

In 1993, the most prominent goal for Tech Prep, according to 36% of those surveyed, was enhancing the workforce through educational programs involving technology and career preparation. In 1995, this goal remained predominant, although less so than in 1993[13] (see Figure 2). In 1995, 29% of the respondents chose the goal to enhance workforce preparation as their top goal for Tech Prep. The next three goals—to reach the neglected majority, give students multiple options beyond high school, and articulate secondary and postsecondary education—were identified by 18-20%, a small increase over 1993 in each category. Finally, in 1993, 17% of the respondents indicated their Tech Prep initiative was directed at reforming secondary school curriculum; however, in 1995, the percentage of respondents who selected this option was 12%, suggesting less emphasis on secondary school reform relative to the other goals.

---

[13] This finding is based on respondents' rankings of the five specified goals on a five-point scale, with 1 representing the top goal and 5 the bottom.

Figure 2
Primary Goal of Local Tech Prep Initiative in 1993 and 1995



Examining these rankings, Table 7 indicates that respondents' views on the goals for Tech Prep were highly disparate. Whereas the goal of enhancing workforce preparation was top for about one-third of the respondents, this goal ranked last or next to last for another one-quarter. About one-fifth of the respondents indicated the goal of reaching the neglected majority was ranked 1st, 2nd, 3rd, 4th, and 5th; the distribution of responses could not have been spread more equally. Except for the goal of reforming the secondary school curriculum, ranked at the bottom or next to bottom by the majority, the four goals of workforce preparation, serving the neglected majority, articulating curriculum, and providing students with multiple options were viable for a fairly large proportion of respondents, suggesting Tech Prep was not intended to meet only one goal, but many. As local circumstances and needs vary, so do the goals of Tech Prep. So, Tech Prep can be viewed primarily as an approach to addressing workforce needs by engaging students who have been neglected by traditional high school curriculum. Accepting this perspective, it is logical and reasonable to pursue multiple goals for Tech Prep.

Table 7
Rank Ordering of Goals for Tech Prep in 1995

Goal	Percent Ranked 1st	Percent Ranked 2nd	Percent Ranked 3rd	Percent Ranked 4th	Percent Ranked 5th
Articulate secondary and postsecondary education	18	13	20	25	24
Enhance workforce preparation	30%	23%	23%	15%	10%
Give students multiple options beyond high school	19	31	22	19	10
Reach the neglected majority	20	19	20	20	20
Reform the secondary school curriculum	12	15	16	22	36

Goals of the Field Sites

Our field study revealed just how complex the task of goal setting can be to local Tech Prep consortia. In many respects, all five of the aforementioned goals are evident in the five sites we studied. All seek to use Tech Prep to prepare a more highly skilled technical workforce, and all do so by improving relationships between secondary and postsecondary education, by serving secondary students who seem to be short-changed by existing curricula, and by increasing options for students in school-based and work-based learning experience. Where substantial differences exist among each site, the level of emphasis on particular goals within the sites seems to shift and grow as Tech Prep evolves. For example, some local consortia build Tech Prep around articulation agreements. Once these agreements are hammered out, priorities shift to another goal, such as articulation with four-year colleges and universities. In other consortia, articulation was not the first priority. Instead, the consortia start with curriculum re-design at the high school level, preferring to make secondary curricular changes before developing articulation agreements. For these sites, Tech Prep goals are not stagnant, but dynamic and dependent upon many factors, not the least of which is the implementation stage.

Elements of Tech Prep

The 1995 respondents were asked to respond to the same list of fourteen elements presented in 1993, plus an additional element: local program evaluation of Tech Prep. Similarly to 1993, results indicate that thirteen of the fourteen elements are formally stated as a foci of Tech Prep by the vast majority of respondents in 1995 (see Table 8). Six elements presented in the 1993 survey were identified by over 90% of the respondents as being "formally stated in writing as a foci for Tech Prep implementation." These include articulation agreements, integrated academic and vocational curriculum, career guidance, collaboration between education and employers, and equal access for special populations. Over 80% of the respondents said an element of Tech Prep was joint inservice for teachers, marketing, and training for counselors. Over 60% indicated elements such as preparatory services, new teaching methods, work-based learning, and alternative assessment. Only in the case of job placement did less than 50% of the 1993 respondents fail to respond affirmatively.

Table 8
Elements Formally Stated as Foci of Tech Prep Initiative in 1993 and 1995

Element	Percent 1992-1993	Percent 1994-1995
Formal articulation agreements to create 2+2 program-area course sequences between secondary and postsecondary schools	96.4%	97.4%
Integrated academic and vocational curriculum	95.6	92.6
Career guidance, including career awareness and exploration	93.6	94.7
Collaboration between educators and employers	92.5	89.6
Equal access to the full range of Tech Prep for special populations	91.9	87.8
Common core curriculum in math, science, and communications (including applied academics) and technologies leading to an associate degree, certificate, or apprenticeship in a career field	91.9	91.4
Joint inservice training for teachers from the entire consortium	89.9	81.3
Marketing of Tech Prep programs	87.0	88.7
Training programs for counselors	82.5	73.1
Preparatory services for all participants in Tech Prep	78.5	73.4
New teaching methods such as cooperative learning appropriate for varied student needs and learning styles	71.9	72.3
Work-based learning experiences (e.g., youth apprenticeships, cooperative education, school academies)	67.7	77.5
Alternative learner assessment (e.g., performance assessment, portfolios)	60.5	60.4
Employment assistance and job placement services	46.8	46.2
Local program evaluation of Tech Prep[a]	—	77.6

Note: [a]The category of "local program evaluation of Tech Prep" was not included in the 1993 survey.

BEST COPY AVAILABLE

In 1995, only minor deviations were noted in the areas of joint inservice for teachers and training for counselors, with 1995 respondents indicating that less attention was being paid to these areas than in 1993. In contrast, more respondents indicated work-based learning to be a formally stated focus of Tech Prep in 1995 than in the previous survey, possibly showing compliance with STWOA. Work-based learning was identified by over 77% of the 1995 respondents as a focus of Tech Prep, up from 68% in 1993. With respect to our new item on "local program evaluation of Tech Prep," about three-fourths of the respondents identified this area as a formally stated focus of Tech Prep, although, as later results show, actual implementation of evaluation was much less common.

Elements as Foci of Field Sites

The breadth of elements specified for Tech Prep is immense. In reviewing the list of elements provided in Table 8, one gets the sense that Tech Prep has taken on a much broader scope than Parnell (1985) imagined in his book *The Neglected Majority*, where the notion of Tech Prep was first introduced on the national scene. Yet, as our local field sites aptly point out, if Tech Prep is going to have an impact, if it is going to be sustainable over time, it must not be isolated from other systemic reforms, particularly those occurring at the secondary level. To advocate new Tech Prep programs that do *not* mesh with other systemic reforms will likely perpetuate the separateness vocational education has experienced from mainstream curricula throughout much of its modern history. Indeed, grappling with the issue of targeting Tech Prep to the neglected majority versus all students is not a peripheral concern but a central one. Aligning Tech Prep with a philosophy of serving all students, as our five field sites have done, demonstrates that the visibility and credibility of Tech Prep can be strengthened, producing valuable advancements in implementation activities. More limited definitions seem destined to replicate the past, yielding far less powerful results.

Target Student Groups for Tech Prep

In both surveys, we asked respondents to indicate the primary target group of students for their local Tech Prep initiative. In 1993, we concluded,

> consortia were directing their efforts to students in the middle quartiles of academic ability, and especially to students in the second quartile (i.e., 50th-75th). Students in the two extreme quartiles were much less likely to be identified as target groups for Tech Prep. . . . [Therefore] it seems apparent that many local Tech Prep coordinators have adopted the perspective that Tech Prep can fill the gap in high school curriculum for the "neglected majority." (Bragg et al., 1994, p. 48)

In 1995, 39% of respondents indicated they were directing Tech Prep efforts to the 25th-75th percentile—the "middle majority," and 20% indicated the 50th-75th percentile group. Together, these two responses accounted for 59% of all 1995 responses compared to 73% in 1993, suggesting the practice of targeting Tech Prep to the neglected majority had weakened. In 1995, we saw a noticeable increase in the proportion of respondents who viewed Tech Prep as for "all students," rising from 11% to 16%. Little change was registered in other categories (see Figures 3 and 4).

Figure 3
Primary Target Groups for Tech Prep by Class Rank Percentiles for 1993

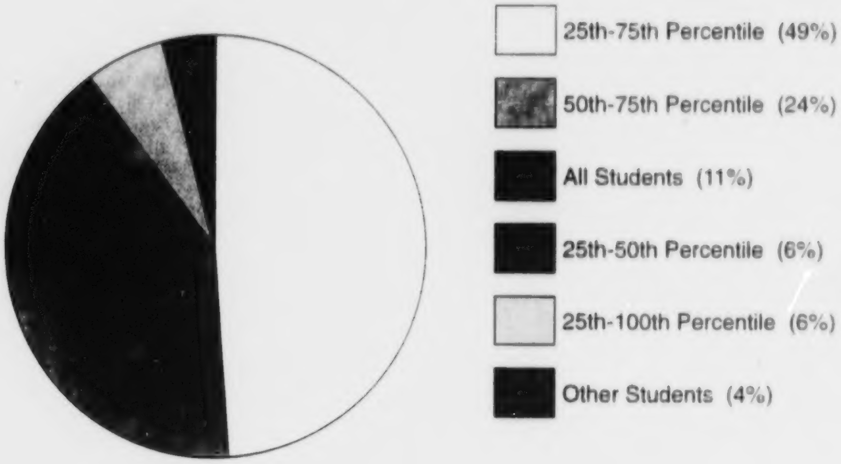
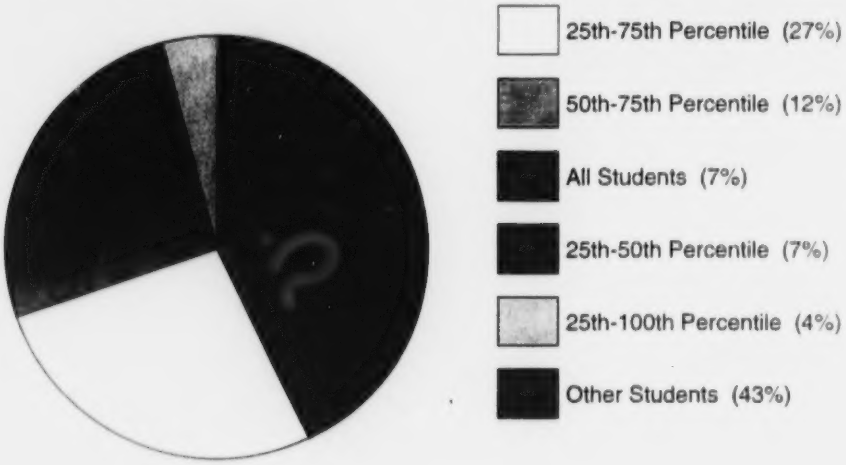


Figure 4
Primary Target Groups for Tech Prep by Class Rank Percentiles for 1995



Anticipating this finding, we added a question to our 1995 survey asking respondents to identify elements of their definition of a Tech Prep student. By checking yes or no, respondents could indicate whether their consortium's official definition of a Tech Prep student included any one of fourteen statements (gleaned primarily from local and state policy statements). To interpret the results, first note that 42% of the respondents denied that a formal written definition exists for a Tech Prep student and 66% answered negatively to the statement that "a formal written admission process is used to admit Tech Prep students" (see Table 9). These responses suggest that the ambiguity we saw in definitions of the target population in our earlier survey (as well as NAVE and national Tech Prep evaluation studies) are largely unresolved.

Table 9
Definitions of the Tech Prep Student in 1995

Element	Percent
Any student who chooses to participate in Tech Prep can do so.	92.4
A Tech Prep student is someone who chooses a program of study designated as Tech Prep.	80.2
A Tech Prep student is someone who has an individualized plan showing Tech Prep is his/her designated program of study.	66.8
A Tech Prep student must create a formal plan to complete a sequence of courses in a core curriculum of math, science, communications, and workplace skills that logically leads to an associate degree.	63.3
A formal written definition exists for a Tech Prep student.	58.3
A Tech Prep student is someone who is required to enroll in vocational-technical courses that are formally articulated to the postsecondary level.	56.1
A Tech Prep student is someone who is academically capable but unmotivated by the traditional academic curriculum.	49.5
A Tech Prep student is someone who is required to take applied academics courses such as applied math, Principles of Technology, or applied communications.	47.6
A Tech Prep student must maintain academic progress on grade level in the core curriculum.	47.3
A formal written admission process is used to admit Tech Prep students.	34.3
A Tech Prep student is someone who actually participates in a work-based learning experience such as co-op or apprenticeship.	30.7
All students are considered Tech Prep students.	21.1
A Tech Prep student is someone who is identified as being at risk of dropping out or of school failure.	12.0
At entry into Tech Prep, a student must meet a specific grade point average.	10.4

BEST COPY AVAILABLE

Addressing this concern head-on, a 1996 statement on Tech Prep by the U.S. Department of Education identified the definition and target population for Tech Prep as its #1 issue. This report addressed concerns brought about by targeting Tech Prep to a subset of students when the goals are applicable to all students. In the *Tech Prep Concept Paper*, Harkin, Beaulieu, Brooks, and Cossaro (1996) concluded "Tech Prep is a curricular and instructional strategy for *all* students [emphasis added]" (p. 4). They support this conclusion with the following rationale:

> In a broader sense, the purpose of Tech Prep education is to prepare an academically and technically competent workforce. This workforce must be prepared to adapt to rapid technological changes in the competitive workforce and to pursue lifelong learning. How then is Tech Prep different from other educational strategies? Let us take a look at its unique features:
>
> (1) a planned, non-duplicative sequence of study in a technical field leading to an associate degree or certificate
>
> (2) an articulated secondary and postsecondary career pathway tied to the evolving workplace
>
> (3) an applied/integrated academic and technical/occupational curriculum
>
> (4) a rigorous set of high academic and occupational skills standards for students (pp. 4-5)

Considering the milieu of concerns surrounding defining the target student population for Tech Prep, it is noteworthy that the top statement, chosen by nearly all respondents, was "any student who chooses to participate in Tech Prep can do so," demonstrating a firm appreciation for access. At the same time, the results do not support the conclusion that all students are Tech Prep students since only a few respondents gave an affirmative response to the statement that "all students are considered Tech Prep students," which closely approximates earlier findings showing 16% of respondents selected the 0-100th percentile of students as the target group for Tech Prep. Of course, it is one thing to construct a definition of Tech Prep that includes all students and quite another to deliver programs so that all students benefit. Although limited evaluation exists of STW, this observation probably applies to other models and approaches to STW, too, such as cooperative education (co-op), youth apprenticeships, and career academies. Saying STW is for *all* appeals to our egalitarian values, but adopting that appealing rhetoric does not necessarily translate into action. To accomplish STW for *all* requires enormous change, far beyond our present circumstances.

64

When a definition is offered for the Tech Prep student, what are the elements of that definition? Results show the definition of a Tech Prep student is much more closely tied to participation in a particular curriculum, course, or program than it is to student characteristics. For example, 80% of respondents indicated a Tech Prep student is "someone who chooses a program of study designated as Tech Prep," 66% said a Tech Prep student is "someone who has an individualized plan," and another 63% said "a Tech Prep student must create a formal plan." In their written comments, several respondents identified counseling as an important element of Tech Prep because it allows schools to expose all students to the opportunity to enroll in Tech Prep; thus Tech Prep is considered a mainstream system or an option for all students within a total delivery system. In effect, students become Tech Prep students through their participation rather than because of their characteristics or any selection mechanism. This conclusion is consistent with earlier findings showing that "any student who chooses to participate in Tech Prep can do so."

Nearly half of the respondents indicated there are other elements of curriculum that can be added to help define the Tech Prep student. These include enrollment in vocational-technical courses formally articulated to the postsecondary level, applied academics courses, and work-based learning. Apparently, for some, educating students for a lifetime in the workforce is central to providing a well-rounded education. These results suggest that, as the Tech Prep process becomes better defined, so does the definition of the Tech Prep student. Some consortia considered their primary target students those who are enrolled in vocational classes, but most expressed a different view. The others suggested the more inclusive the Tech Prep approach, the better the chances of countering the isolationism characteristic of some vocational programs. These consortia refuse to label or track students under the banner of Tech Prep, preferring to consider all students participants in a comprehensive education system.

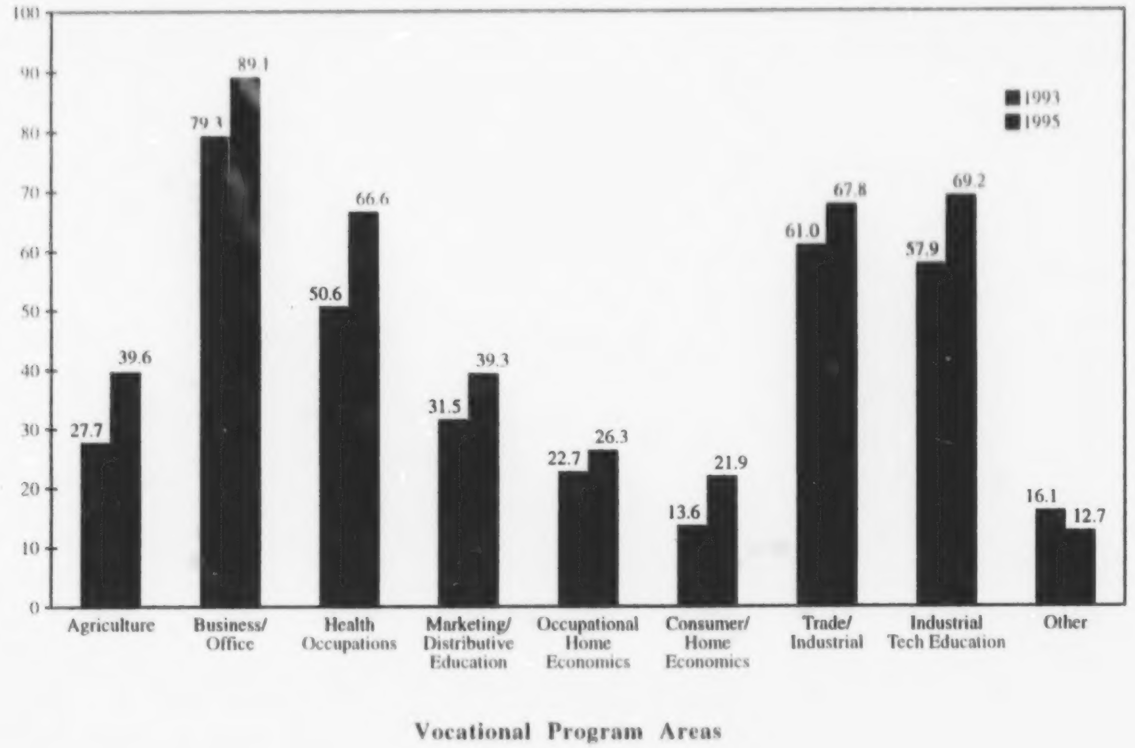
Ultimately, these results suggest that, in practice, Tech Prep is rarely targeted at particular student groups, especially the top or bottom academic-ability quartiles. Only 12% of the respondents indicated that a Tech Prep student is someone who is at risk of dropping out or of school failure (suggesting lower academic ability) and only 10% indicated a student must meet a specific grade point average to enter Tech Prep (approximating higher academic ability).

Nearly half of the respondents did report that a Tech Prep student must maintain academic progress on grade level in the core curriculum, but this is quite different from requiring a particular entry-level grade point average (GPA) for access into the program. In these sites, a wide population of students—sometimes all students—are encouraged to enroll rather than targeting only a few. Once engaged, all students are expected to perform at prescribed academic and occupational performance levels, specified by educators and sometimes other stakeholders, such as employers. The established performance levels are often well beyond what the typical student (sometimes labeled the "general education" student) is attaining, particularly in the math, science, and technical course sequences. In so doing, students are better prepared to matriculate to college, often receiving articulated credit in the process.

Vocational Program Areas for Tech Prep

When students enroll in Tech Prep, what is the focus of their involvement in vocational-technical areas? Over one-half of the 1995 respondents indicated that Tech Prep involved one or more of four vocational-education program areas (see Figure 5). Business and Office was a focus of most Tech Prep initiatives in 1993 and almost all in 1995, followed by Trade and Industrial Education that was reported by approximately two-thirds of respondents. In 1993, Industrial Technology Education was the next most prominent vocational area as it was reported to be part of about two-thirds of the consortia as well. A fourth vocational area, appearing in slightly over one-half of the 1993 consortia, was Health Occupations. This percentage increased by 1995 to two-thirds, approximating the same level of activity as Trade and Industrial Education and Industrial Technology Education. While less than one-third of the 1993 consortia reported involving any of the remaining vocational program areas such as Agriculture, Marketing/Distributive Education, or various areas of Consumer and Family Studies, nearly one-half indicated Agriculture and Marketing/Distributive to be part of Tech Prep curriculum reform by 1995.

Figure 5
Vocational Program Areas Involved in Tech Prep in 1993 and 1995



Vocational Areas in the Field Sites

The concentration of Tech Prep programs in such areas as Business and Office, Health Occupations, Trade and Industrial, and Technology Education was evident in our field sites as well. Vocational program such as business management, nursing, automotive technology, or electronics are likely foci because they have a logical extension to the postsecondary level, and they have a meaningful connection to academic subjects, making academic and vocational integration a valuable activity. Since a requirement of Tech Prep is to articulate programs from the secondary to the postsecondary level, some secondary vocational education programs do not fit the Tech Prep model well because there is no obvious parallel curriculum at the collegiate level. Several representatives of our local field sites talked about the challenges in realigning secondary and postsecondary vocational curriculum; in some cases, new vocational programs were built from scratch at either the secondary or postsecondary level to ensure a core sequence of courses for grades 9-14. Clearly, such immense changes take time and resources. They also require skillful leadership as changes of this scope rarely occur without conflict or stress. Fundamentally, reorganization of this scale requires that local policymakers and practitioners take a close look at what Tech Prep means and how it is similar to or different from vocational education and other aspects of the secondary curriculum.

How Tech Prep Differs from Vocational Education

Five major components distinguish Tech Prep from vocational education, according to our survey respondents. The most important components are applied academics, articulation, workplace experiences, career clusters or pathways, and the notion that Tech Prep is a strategy that benefits all students. These components are not universal or even readily applicable to all respondents. Nevertheless, the terms used to define Tech Prep reflect a fair amount of consistency.

Applied Academics

An important foundation of Tech Prep is its academic component. One hundred and forty-nine respondents in 42 states identified academics as a central part of their definition of Tech Prep. Principally, academics in Tech Prep are considered to be integrated with vocational courses, usually meaning a combination of academic and technical subject matter. Sixty-three consortia included the element of applied academics in their definitions of Tech Prep, using terms such as *cluster*, *sequence*, *integration*, *direct link*, or *pathway*, in which applied academics are a key element. Eighteen consortia described applied academics in superlative terms: "Tech prep includes *more* academic coursework in programs of study." Or the academic element of the program is described as "rigorous" or as the "foundation" of the Tech Prep course of study. One coordinator identified applied academics as the principle characteristic of Tech Prep reform, saying "Tech Prep is a change to applied academics." Other respondents said that applied academics "supported" technical programs or "complemented" them.

Though Tech Prep appears to be based on the idea that academics are closely linked to technical education, relatively few consortia defined academics in term of specific standards. Only twelve consortia pointed out that Tech Prep was differentiated from vocational education because of its "high level" or "increased academics." Fewer identified a specific GPA as a measurement of academic performance that could be used to define "high level" academics and, therefore, Tech Prep, which is consistent with our previous discussion regarding definitions for Tech Prep students. In fact, 28 consortia differentiated Tech Prep from vocational education with *minimum* standards in core academic courses in mathematics, English, communications, or science. Also, not all consortia consider these subjects equally important; mathematics was named more often than science, English, or communications.

As a final comment on raising academic standards, only four consortia identified Tech Prep students as those students required to take a specific number of courses or years in academic subjects. A few consortia stipulated that these courses were internally oriented toward students with *applied* interests or, in other words, *related courses* with a contextual format (Bolt & Swartz, 1997), while other consortia identified mathematics, English or communications, and science courses as part of a broader set of coursework, avoiding stipulating that these are applied courses by nature. Only one consortium identified the academic core of math, science, and communications as "designed to make postsecondary study a possibility for all students."

Articulation

Close behind applied academics is the notion that secondary and postsecondary schools create continuous Tech Prep programs to support the completion of higher degrees or further education, almost as though this component was so obvious and little in the way of specific comments were necessary. Some consortia emphasized that the academic core of the secondary program is articulated directly to the postsecondary level (i.e., to the associate degree, a certificate in a specific field, or apprenticeship). A few consortia defined articulation as a formal agreement between institutions, in which standards of accomplishment are governed by "skill content/curriculum review" by faculty and business representatives, or in which other academic standards are agreed upon, thereby determining who can articulate. This approach to Tech Prep articulation was evident at two of our field sites: the Golden Crescent Tech Prep/School-to-Work Partnership and Mt. Hood Regional Tech Prep Consortium. Although not prevalent, a few respondents indicated that articulation is pursued by the student as opposed to the institution itself.

Work-Based Learning

Although not the majority, some respondents emphasized workplace (or work-based) learning experience as a core component of Tech Prep. For a growing number of respondents, work-based learning made an important contribution to Tech Prep and its applied academics coursework, providing "practical application of learned skills in a workplace setting." In at least a few consortia, work-based learning was limited to "honors students" or "special populations" and the student body at large was not informed about workplace learning opportunities. However, this does not appear to be the norm. More often, consortia were grappling with operationalizing the idea of work-based learning for all students. Only one consortium specifically noted that adult apprenticeships were a part of Tech Prep and an alternative to the associate degree.

Some consortia associated Tech Prep with internships or youth apprenticeships offered in conjunction with local business and industry. In fact, this view was evident in the East Central ETC Partnership (one of our field sites) that has incorporated the youth apprenticeship model into nearly all aspects of Tech Prep. Consortia like the East Central ETC Partnership are moving toward providing work experiences for a sizable proportion if not all students. In this consortium, youth apprenticeships and other forms of work-based learning are a core component of Tech Prep, following state guidelines established when Tech Prep grants were first awarded in 1991. As such, Tech Prep is indistinguishable from STW and, because the term *Tech Prep* has become recognized and accepted in the community, the new terminology of STW has not been emphasized in an attempt to avoid the perception that Tech Prep was being replaced quickly by yet another program. Although their approaches were different, all of our five field sites held somewhat similar views toward the relationship between Tech Prep and STW.

Career Clusters or Pathways

Some consortia considered career development or education to be part of Tech Prep, and the predominant terminology used to describe this component was *career path* or *career cluster*. Career paths or pathways were typically career or technical in nature and were combined with stronger academic components. Tech Prep was sometimes characterized by the planning of career pathways (apparently consistent with the STWOA legislation). Tech Prep students were said to follow a career path to work or postsecondary study. One consortium identified Tech Prep as a secondary technology curriculum (among others) that could be followed by students. Tech Prep students could identify a vocational program within career clusters that would eventually lead to an associate degree. Of course, in at least some of these cases, career clusters represented more of an administrative than curricular feature since existing vocational programs appeared to be unchanged.

On the other hand, many respondents considered career clusters broader in scope than vocational education as evidenced by the following statement: "Tech Prep is aimed at a career cluster and requires postsecondary training." Career clusters in engineering, health and human services, and business were common. One consortium considered career clusters and pathways to be the solution to the division between vocational and academic tracks; in this view, "all students are 'career bound.'"[14] Furthermore, some consortia considered career guidance or counseling part of Tech Prep. For these consortia, Tech Prep includes career guidance that extends throughout the student's career, including academic and career assessment. Guidance counselors play a critical role in these Tech Prep initiatives, from junior high school through at least the community college level.

No Differentiation

Twenty-seven consortia specifically stated that they do not differentiate between Tech Prep and vocational education; however, these responses fall into several categories. Some claim to have no Tech Prep program in place that is distinctive from other vocational programs. These consortia state either that clear policies have not been laid down to define a distinct Tech Prep program or that there are efforts being made to make the distinction, but they are incomplete. Some consortia make no distinction because they have incorporated either the term or some elements of Tech Prep into all existing vocational programs. Here, the term *Tech Prep* is applied with no mention of reforms to change the stigma of vocational education. Most often, however, distinction is not made because elements of Tech Prep are incorporated into existing vocational programs still not considered to be Tech Prep at the local levels. In other words, the old vocational system continues to dominate and overwhelm early changes associated with newer Tech Prep. These consortia commonly adopt such facets of Tech Prep as articulation and applied academic courses, but deeper changes are not reported. While these consortia may not consider Tech Prep to be a part of or distinct from vocational education generally, it has informed the local practice of vocational education. Of course, such subtleties are nearly impossible to apprehend using survey research.

---

[14] For further reading on this perspective toward academic and vocational education, see Badway and Grubb (1997) and Illinois Task Force on Integration (1997).

In contrast to some local Tech Prep coordinators who were surveyed, none of the coordinators in our field sites considered Tech Prep and vocational education synonymous with one another. Rather, they viewed Tech Prep as a more contemporary approach to help restructure all of education, partly by updating vocational education or replacing it altogether. At the least, each of the five field-site coordinators recognized the need to align vocational education with more current thinking, particularly with respect to their personal beliefs about how secondary education ought to work.

Further, all of our five field sites viewed Tech Prep as having a close relationship with STW, although most did not see Tech Prep and STW as synonymous. Interestingly, where the line between Tech Prep and STW seemed to us to be the most blurred was in the rural settings, where the limited size of schools, teaching staffs, employers, and student populations compelled nearly everyone to think carefully about how one reform, Tech Prep, should relate to the next reform, STW. In our two rural sites, the local Tech Prep coordinator became the STW coordinator, making a fairly smooth transition into this position. Few distinctions were made between Tech Prep and STW, as evidenced by how often a wide range of local personnel interchanged the terms. Referring to the Golden Crescent Partnership, Carrie Brown, state evaluator of Tech Prep in Texas explained in her field notes,

> This partnership appears to have fully integrated Tech Prep and STW, as well as related state and local education reform initiatives. This is reflected in the consortium's name, mission statement, goals, by-laws, governance

> in the consortium's name, mission statement, goals, by-laws, governance structure, print materials, [and] activities. . . . [T]here is no problem with the definitions of Tech Prep and STW locally. . . . The timing is perfect for STW (with regard to increased emphasis on workplace experiences and earlier work experiences, the ability to expend funds to lower grade levels, and a formal change in board composition to meet federal requirements), and the initiatives are stated to be complementary.

Directing her comments to the complementary nature of Tech Prep and STW in Texas, and specifically the Golden Crescent Partnership, she added,

> Although most people interviewed overwhelmingly stated that their approach to Tech Prep and STW is no different ("they are the same thing," "they are identical," etc.), some distinguishing characteristics were evident. They are: a) the focus of Tech Prep is secondary to postsecondary articulation, and in STW, the emphasis is from school to college to the workplace; b) board composition is different; and c) STW focuses on earlier workplace experiences.

What seems apparent from Brown's comments is that there are features (or priorities) that distinguish Tech Prep and STW; however, many of these are complementary, even transparent to local practitioners and other stakeholders. In fact, the closer one gets to the classroom, the foggier the distinctions get; the farther away from the classroom (especially the state and federal levels), the wider the gap.

Distinctions between Tech Prep and STW were more evident in the suburban and urban settings we studied. There, different people led the two initiatives and their relationships were not as clearly formulated, although, in most cases, we still saw cooperative arrangements being forged. These arrangement varied, however. In one site, Tech Prep was designated as the school-based side of the STW equation while the work-based side was to be carried out by new staff dedicating itself to securing more workplace learning arrangements for students. Of all our sites, this conceptualization was most problematic because of the separation of the two most critical aspects of STW (school-based and work-based learning) at the administrative level. A tension if not outright competition was evident between the two "camps" responsible for the school-based and work-based components. In yet another site, Tech Prep was viewed as a premier approach to STW for more academically talented students, incorporating both school-based and work-based components. In this site, other approaches such as cooperative learning (co-op) were encouraged for the rest of the student population, creating the potential for a two-tier approach to STW. Still, in all of our field sites, STW was perceived as the umbrella for several STW models and approaches, with Tech Prep being one of the most central.

Curriculum Reform and Tech Prep

Survey respondents were asked to respond to a list of twelve potential curriculum reform options that could have been implemented at the secondary or postsecondary level. These options focused on several avenues of reform such as articulation, applied academics, career academies, block scheduling, and work-based learning. At both the secondary and postsecondary levels, the proportion of consortia implementing almost any one of these reforms was thought to have increased from 1993 to 1995 (see Table 10). At the secondary level, increases were evident in the areas of career clusters, block scheduling, advanced-skills curriculum, and work-based learning. At the postsecondary level, noteworthy increases were reported in the areas of supplementing existing vocational courses with academics or vice versa, adding advanced-skills courses, and providing work-based learning. The only areas where no change or a decline was reported was in career academies at both the secondary and postsecondary levels and in block schedule courses at the postsecondary level.

In 1993, the major thrust of Tech Prep curriculum reform took place at the secondary level. In 1995, secondary curriculum reform activities continued to surpass those reported for postsecondary schools, with the exception of a few activities. One of these was articulation of vocational and academic program sequences between secondary and postsecondary schools—a process that requires that both levels be involved. Another area was work-based learning, an approach to learning that has taken place in many postsecondary schools in the form of co-op education and professional-clinical experiences for many years (Bragg & Hamm, 1996; Bragg et al., 1995; U.S. Congress, Office of Technology Assessment, 1995). An additional area was the addition of advanced-skills curriculum, a strategy that has a direct impact on postsecondary curriculum because of the necessity to develop new courses at the upper level when standards are raised in preceding courses (Parnell, 1985).

Table 10
Tech Prep Curriculum Reform at the Secondary and Postsecondary Levels in 1993 and 1995

	1992-1993		1994-1995	
Tech Prep Curriculum Reform Efforts	Secondary (Percent)	Postsecondary (Percent)	Secondary (Percent)	Postsecondary (Percent)
Articulate vocational program sequences between secondary and postsecondary levels.	89.5%	88.1%	94.2%	93.4%
Add applied academics (commercially or locally developed) to existing curriculum.	86.4	37.7	88.8	41.3
Supplement existing vocational courses with academics.	76.5	42.7	81.3	53.2
Replace existing curriculum with applied academics (commercially or locally developed).	77.9	29.9	80.4	40.1
Supplement existing academic courses with vocational courses.	72.1	34.3	80.4	49.0
Articulate academic program sequences between secondary and postsecondary levels.	69.6	69.2	75.2	77.2
Organize occupational/career clusters.	68.9	51.6	79.7	58.6
Sequence and block scheduling courses.	56.5	32.0	71.2	32.1
Provide work-based learning.	46.2	39.8	66.6	64.1
Add advanced-skills courses to the existing curriculum.	40.6	35.3	51.4	53.2
Provide career academies.	39.9	23.3	39.9	20.3
Provide interdisciplinary courses.	37.4	22.3	48.3	29.0

BEST COPY AVAILABLE

Curriculum Reform in the Field Sites

Many of these reforms were represented in our five field sites. For example, in the Miami Valley Tech Prep Consortium, noted for its dedicated use of advanced-skills curriculum, students progress to higher levels of competence in academic and technical subjects at both the secondary and postsecondary levels *without* the provision of dual credits. The consortium awards scholarships to most students who matriculate from the secondary to postsecondary level in a 2+2 curriculum sequence (grades 11-14). The University of Dayton, a private school, participates in the consortium, offering students the opportunity to complete their final two years of college with a baccalaureate degree (creating the 2+2+2 approach). In contrast, the Tech Prep initiative located in the East Central ETC Partnership is directed at grades 9-14, creating a 4+2 pattern. Over 70 business and labor partners are involved, several of whom sponsor youth apprenticeships for Tech Prep students. Tech Prep/youth apprenticeships are available in the areas of manufacturing, accounting, banking, health occupations, and food service. With the support of local employers, all apprenticeships require a postsecondary component consisting of two years of study for the associate degree at Danville Area Community College (DACC). After graduating from DACC, most, if not all, of the apprenticeships require that students go to work full-time as a way to compensate the businesses for their human resource investment. A two-year minimum of full-time work is prescribed, after which students can continue their education at four-year colleges, if they so choose. Concurrent college enrollment and full-time work is possible, often with support for tuition from local employers; however, the remote location of the East Central ETC Partnership provides few options for four-year college in the area, so many students foresee having to move out of the area to continue their pursuit of a baccalaureate degree.

A third consortium, the Golden Crescent Tech Prep/School-to-Work Partnership, develops its own version of Tech Prep but also adheres to the curriculum required by the state of Texas. At Golden Crescent, seven Tech Prep pathways are approved by the Texas Higher Education Coordinating Board. These pathways are offered in such areas as electronics/instrumentation advanced technology, associate degree nursing, and microcomputer technology. Dual credit is a key feature of articulation agreements worked out between the almost 40 high schools and intermediate school districts and the local community college, Victoria College; over 20 high school vocational-technical courses provide college credit. Much like this Texas consortium, the Mt. Hood Regional Tech Prep Consortium, has offered articulation agreements as the backbone of its Tech Prep initiative for many years. To date, 13 professional/technical areas are offered by Mt. Hood College that are articulated with feeder high schools. More recently, several high schools in the consortium have become involved in whole-school reform. Noteworthy among these is the Reynolds High School, which is attempting to change the learning environment by re-organizing around four houses or families. The goals of each house are to assist students in achieving academic and career goals, to support students in making successful transitions, to assist students in meeting Certificate of Initial Mastery (CIM) standards, and to integrate instruction that connects learning to real-world application.

Taking a very different tact but also focusing on secondary school reform, our fifth field site, the Hillsborough School District/Community College Tech Prep Consortium, has specified courses of study that students select during counselor/student conferences. The School District of Hillsborough County has indicated that several courses of study have a Tech Prep focus, including the *Tech Prep* course of study where students take appropriate community college preparatory courses, plus applied technical courses; the *College/Tech Prep* course of study where students meet College Prep and Tech Prep requirements; and the *Florida Academic Scholars/Tech Prep* course of study where students take specific academic course requirements along with Tech Prep to qualify for the Florida Gold Seal Scholarship. The later two courses of study are designed specifically to attract college-bound students while the general Tech Prep pathway attracts a sizable proportion of special needs students. According to local officials, having the distinctive courses of study was important for this consortium because, historically, vocational education has been populated primarily by special needs students. To differentiate Tech Prep from vocational education and reinforce its emphasis on academic standards, the *College/Tech Prep* and even more importantly the *Florida Academic Scholars/Tech Prep* options were seen as vital to the success of the local Tech Prep initiative.

Stage of Implementation of Tech Prep

This section presents findings related to the overall stage of implementation of selected components of Tech Prep, as reported by the local coordinators surveyed.

Stage of Implementation of Selected Components

Based on the federal Tech Prep legislation, an extensive literature review, and findings from previous research on Tech Prep implementation, 36 components of Tech Prep were listed in the survey. Six of these components were new to the survey and they were added because they were thought to be representative of activities that Tech Prep consortia might engage in when implementing STW activities.[15] Shown in Table 11, the range of mean ratings for the stage of implementation of all 36 of the components in 1993 was between 2.0 and 4.0, indicating ratings from the planning to the initial implementation stage. Mean ratings for 1995 were higher, ranging from 2.5 to 4.6.[16]

---

[15] The concept of *stage of implementation* is based on a conceptual framework for Tech Prep implementation reported in Bragg et al. (1994). The scale follows: (1) *Not begun* – indicates the component has not been addressed; (2) *Planning* – includes goal setting, staff orientation, the formation of committees and teams, and the development of plans for a component; (3) *Development* – involves such activities as reviewing, designing, creating, and field testing a component; (4) *Initial implementation* – occurs when plans and products of the development stage begin to be carried out; (5) *Advanced implementation* – occurs when a component is routinely carried out, regularly reviewed and evaluated, and institutionalized so that it continues even if current leaders were no longer responsible for Tech Prep; and (9) *Not addressed (NA)* – indicates that a consortium did not intend to include the component in its Tech Prep initiative.

[16] Respondents were asked to rate the level of implementation of each of these components on a five-point scale where 1 = not begun, 2 = planning, 3 = development, 4 = initial implementation, and 5 = advanced implementation. Responses were analyzed with frequency distributions, means, and standard deviations.

BEST COPY AVAILABLE

Table 11
Stage of Implementation of Tech Prep Components in 1993 and 1995

Tech Prep Components	1992-1993 Not Begun %	Plan %	Development %	Initial Implementation %	Advanced Implementation %	NA	Mean[b]	SD	1994-1995 Not Begun %	Plan %	Development %	Initial Implementation %	Advanced Implementation %	NA	Mean[b]	SD
Formal signed articulation agreement(s) between secondary and postsecondary schools	3.3	15.8	20.6	39.9	18.3	2.0	4.0	1.12	0.0	1.8	7.4	18.6	71.7	0.6	4.6	0.7
Consortium building (including recruiting schools, colleges, employers, and other organizations)	.8	7.1	10.4	43.8	37.2	.8	4.1	.91	1.5	1.8	4.7	25.7	65.4	0.9	4.5	0.8
Formal governing/advisory board[a]	—	—	—	—	—	—	—	—	4.1	3.8	7.4	21.0	62.1	1.5	4.4	1.1
Equal access for all students	7.9	20.6	30.2	27.4	13.5	.5	3.7	1.2	0.6	5.6	7.4	32.3	53.7	0.3	4.3	0.9
Applied academics courses such as Principles of Technology[a]	—	—	—	—	—	—	—	—	2.7	2.9	8.6	33.0	51.3	1.5	4.3	0.9
Team building to facilitate Tech Prep planning and implementation	3.8	13.3	25.8	39.5	17.1	.5	3.8	.96	1.8	1.8	11.3	40.7	44.2	0.3	4.2	0.9
Site-based planning and decisionmaking for Tech Prep	4.1	19.2	21.5	39.5	15.2	.5	3.6	1.1	2.1	3.3	12.5	34.4	46.3	1.5	4.2	0.9
Joint inservice of secondary and postsecondary personnel (e.g., faculty, counselors, administrators)	1.5	9.9	18.7	46.1	23.3	.5	3.8	1.1	4.7	5.9	10.0	33.3	45.4	0.6	4.1	1.1
Development of 2+2 core academic and technical curriculum	4.1	8.6	16.2	44.6	26.6	0.0	3.6	1.1	1.2	5.9	16.6	34.1	40.9	1.2	4.0	1.0
Career awareness and exploration for students in Tech Prep	2.5	15.9	20.8	38.5	21.8	.5	3.3	1.2	0.3	6.2	20.1	42.9	29.6	0.9	4.0	0.9
Long-range and/or strategic planning for Tech Prep	18.0	18.5	20.6	29.7	11.7	1.5	3.5	1.1	2.1	7.7	20.4	29.8	39.8	0.3	4.0	1.1
Guidance and counseling services	22.1	23.2	21.1	23.9	7.9	1.8	3.2	1.1	0.9	7.2	19.5	37.2	34.2	0.6	4.0	1.0

BEST COPY AVAILABLE

Table 11 (cont.)

	1992-1993								1994-1995							
Tech Prep Components	Not Begun %	Plan %	Development %	Initial Implementation %	Advanced Implementation %	NA	Mean^b	SD	Not Begun %	Plan %	Development %	Initial Implementation %	Advanced Implementation %	NA	Mean^b	SD
Integration of academic and vocational secondary curriculum	4.0	8.3	12.4	31.6	42.7	1.0	3.3	1.0	2.1	8.3	16.8	41.3	30.7	0.9	3.9	1.0
Inservice training of counselors in recruitment, placement, and retention of students for Tech Prep	5.6	19.5	29.1	30.9	14.4	.5	3.4	1.1	3.8	5.6	17.5	40.8	31.7	0.6	3.9	1.0
Marketing and promotions	17.3	26.0	22.1	23.2	9.4	2.0	3.4	1.2	1.2	7.8	22.1	35.8	33.1	0.0	3.9	1.0
Formal partnerships with business and industry	13.3	24	24.8	25.8	9.5	2.6	3.2	1.1	3.6	8.3	21.9	34.3	31.7	0.3	3.8	1.1
Use of new instructional strategies (including cooperative learning approaches)	19.1	25.3	23.3	21.2	7.8	3.4	3.2	1.1	2.7	8.3	21.0	42.0	24.6	1.5	3.8	1.0
Collaboration between academic and vocational educators	15.3	15.5	20.1	27.5	18.6	3.1	3.3	1.1	1.8	8.3	20.4	46.2	22.8	0.6	3.8	0.9
Individualized student training and/or career plans[a]	—	—	—	—	—	—	—	—	4.2	10.1	22.3	34.4	27.3	1.8	3.7	1.1
Preparatory services for all participants	17.9	26.2	22.6	23.1	7.7	2.6	3.1	1.2	5.1	13.8	21.0	28.4	27.5	4.2	3.6	1.2
Strategies to address the needs of special populations	7.1	22.7	25.5	31.1	12.1	1.5	3.2	1.1	4.7	13.4	24.9	30.3	26.1	0.6	3.6	1.1
Evaluation of Tech Prep programs	37.9	29.5	15.3	8.1	2.5	6.6	2.9	1.2	4.7	13.3	28.1	28.1	25.4	0.3	3.6	1.1
Workplace professional development experiences for teachers and counselors	7.3	21.8	24.8	29.9	15.9	.3	3.0	1.3	7.7	14.2	20.7	32.5	23.1	1.8	3.5	1.2
Labor market analysis to inform curriculum development	4.3	17.7	31.6	34.9	10.6	.8	3.2	1.3	11.3	11.6	21.1	28.2	26.1	1.8	3.5	1.3
Work-based learning for students (e.g., internships, apprenticeships)	7.1	24.0	27.5	27.5	13.4	.5	2.6	1.3	5.6	18.3	24.5	35.7	15.0	0.9	3.4	1.1
Performance standards and measures for Tech Prep[a]	—	—	—	—	—	—	—	—	7.1	16.6	30.3	24.0	20.2	1.8	3.3	1.2

Table 11 (cont.)

	1992-1993								1994-1995							
Tech Prep Components	Not Begun %	Plan %	Development %	Initial Implementation %	Advanced Implementation %	NA	Mean[b]	SD	Not Begun %	Plan %	Development %	Initial Implementation %	Advanced Implementation %	NA	Mean[b]	SD
Alternative assessments (e.g., portfolios, performance assessment)	6.3	16.2	23.7	32.8	20.5	.5	2.8	1.2	6.8	18.0	22.8	35.2	14.5	2.7	3.3	1.1
Use of outcomes-based education for Tech Prep	20.3	27.3	23.5	19.5	7.1	2.3	2.9	1.2	13.8	11.1	19.8	28.8	18.0	8.4	3.3	1.4
Development of advanced-skills technical curriculum	3.3	17.2	18.0	32.4	28.9	.3	2.7	1.2	13.1	14.0	23.5	27.7	19.9	1.8	3.3	1.3
Joint planning time for academic and vocational teachers	32.0	22.0	13.6	14.8	12.8	4.9	2.8	1.2	14.5	14.2	27.4	26.0	14.2	3.8	3.1	1.3
Integration of academic and vocational postsecondary curriculum	5.8	22.2	27.3	31.8	12.6	0.3	2.7	1.2	17.5	13.0	25.1	24.9	14.8	4.7	3.0	1.3
Formal assessment and certification of skills based on industry standards[a]	—	—	—	—	—	—	—	—	19.3	21.7	22.6	22.3	12.2	2.1	2.9	1.3
Incorporation of "all aspects of the industry"[a]	—	—	—	—	—	—	—	—	17.4	22.5	22.5	22.2	9.3	6.3	2.8	1.3
Job placement services for students/graduates	7.8	24.3	26.9	25.8	14.0	1.3	2.5	1.2	24.9	16.6	22.6	18.4	13.9	3.6	2.8	1.4
Apprenticeships spanning secondary and postsecondary education	39.4	24.9	16.0	11.7	3.8	4.1	2.0	1.1	27.3	18.1	16.9	22.6	8.0	7.1	2.6	1.3
Computer monitoring (tracking) of student progress through Tech Prep programs	13.6	24.5	28.5	23.0	9.8	.5	2.1	1.2	27.0	22.6	24.3	14.8	8.3	3.0	2.5	1.3

Notes: [a]Categories were not included in the 1993 survey.

[b]Mean scores presented in this table are calculated *without* the "NA" value.

A total of twelve components were given mean ratings of 4.0 or higher in 1995, placing them between the initial and advanced implementation stages, compared to only two components rated at this level in 1993. Of these components, 1995 respondents said their consortia were farthest along with formal signed articulation agreements, giving it a mean rating of 4.6. This component was rated at the advanced implementation stage by 72% of the 1995 respondents compared to only 18% of the 1993 respondents. The other component above 4.0 in both 1993 and 1995 was consortium building. The percentage of respondents who rated this component at the advanced implementation stage was 65% in 1995 but only 37% in 1993. Other components rated above 4.0 in 1995 were formal governing/advisory boards; equal access for all students; applied academics course offerings, such as team building; site-based planning; joint inservice of secondary and postsecondary personnel; development of 2+2 core curriculum; career awareness and exploration; long-range and/or strategic planning; and guidance and counseling.

Nineteen components had mean ratings between 3.0 and 3.9, indicating a majority of the 36 components were considered to be between the development and initial implementation stages in 1995 (two or more years into Tech Prep implementation for most respondents). Interestingly enough, these 19 components ranged from integration of academic and vocational education at the *secondary* level (3.9) to integration of academic and vocational courses at the *postsecondary* level (3.0). Several other components at this same level of implementation were associated with professional development, an "essential element" of Tech Prep according to the federal law. These components were inservice for counselors, workplace professional development for teachers and counselors, and joint planning time. Other components at this stage centered around curriculum issues such as the use of new instructional strategies, advanced-skills curriculum development, individualized student training and/or career plans, and outcomes-based curriculum. Still others were associated with evaluation and assessment, including evaluation of Tech Prep programs, labor market analysis, performance standards and measures, and alternative assessments. Eight of these components received a rating below 3.0 in 1993.

Five components were rated between 2.0 and 2.9, indicating their level of implementation to be between planning and development. Components at this stage were formal assessment of Tech Prep students; incorporation of "all aspects of industry"; job placement services; apprenticeships spanning from secondary to postsecondary; and, finally, computer monitoring or *tracking* of Tech Prep students' progress. The first two of these components were not rated in 1993 because they represent new activities associated with STW systems, but the latter three components were rated in 1993 and these were given even lower ratings at that time.

Within the five field sites there seemed to be a heavy emphasis on organizing and administering Tech Prep initially and now Tech Prep combined with STW. These activities could be considered *consortium building* or *site-based planning*. The local coordinators involved in the field studies were engaged in a great deal of coordination activity, ensuring that information was circulated properly and key organizations and persons were informed and "on board." After these concerns were cared for, activities such as professional inservice, curriculum development, instruction, guidance/counseling and other core functions were carried out, explaining why these activities were still rated at the development to initial implementation stages after two or more years of funding.

Our field-site findings reinforce the fact that Tech Prep implementation efforts are fully logical or linear. Momentum in implementing a new initiative such as Tech Prep moves rapidly at times and more slowly at others. From year to year (or even more quickly), implementation can shift from one aspect of the academic curriculum to another (math to science), one part of the vocational curriculum to another (business to health), from one level of education to another (freshman to senior), from one student population to another (middle to all), and so forth. Even relatively dramatic shifting of priorities can occur to accommodate local needs, indicating that a certain level of "agility" is advantageous to Tech Prep implementation.

Many factors contribute to changes in direction such as the ebb and flow of the academic calendar, turnover of key local leadership (especially high school principals), coordination (or lack thereof) with related reforms, changing local economic and social conditions, stability of resources over time, changes in state and federal priorities, and expressed demands of particular stakeholder groups. Some of these factors are predictable; others are not. Yet, recognizing how these kinds of factors affect implementation is essential if practitioners are to create real change and if policymakers at all levels are to encourage and support it. To expect significant change with respect to Tech Prep or STW in a short time period on a set timetable is simply not realistic.

On the other hand, there are some predominant patterns in the way Tech Prep implementation has occurred, largely due to the limited prescription provided by the Tech Prep Education Act, especially since few states enforced additional requirements (Layton & Bragg, 1992). Most consortia used initial funding to build an administrative structure and hire a coordinator. This individual took responsibility for creating a sort of "virtual" organizational structure called a consortium made up of the leadership of local secondary schools, a community college, businesses, labor, and sometimes other groups. Articulation agreements and all they entail (e.g., curriculum or course review and realignment) were typically the next step to formulating the core sequence of the Tech Prep curriculum. Unfortunately, these agreements usually applied to the vocational curriculum and much less often to the academic.

On the academic side, consortia sought help in the form of off-the-shelf applied academics curriculum to initiative activity around the integration of academic and vocational education—almost completely at the secondary level. Later, they may have provided small incentives for teachers to develop their own applied academics courses or other forms of integration at either the secondary or postsecondary levels. When this was done, leadership for Tech Prep may have been decentralized to some degree with monies oriented to a school-based coordinator to oversee special projects funded by Tech Prep, seemingly lessening the need for a full-time coordinator for the "virtual" organization, the consortium. When this occurred, the evolution of Tech Prep often became less predictable. Depending upon the local (school) context and needs, priorities may have been directed to career guidance and counseling, education/business partnerships and work-based learning for students, elementary or middle-school career exploration, and so forth. If STW was underway within a state, these priorities took on greater priority.

Barriers to Tech Prep Implementation

Barriers to the implementation of Tech Prep were also a focus of this study.[17] To the list of 47 barriers presented in the 1993 survey, we added 19 new barriers, many of which represented more recent concerns associated with Tech Prep, STW, or other reforms. Altogether, the list of barriers was wide ranging, covering obstacles linked to attitudes, resources, expertise, policy, and practices. Overall, the vast majority of barriers had minor or moderate levels of impact on Tech Prep implementation (see Table 12). However, eight of the 69 barriers had a mean score of 4.0 or higher, representing a slightly larger number of barriers rated at this level of importance than in 1993. About half of the 69 barriers were considered to be minor barriers, and another 22 were considered very minor.

---

[17] Similarly to the 1993 survey, respondents were presented with a list of barriers and asked to rate the level of impact of each according to the following scale: 1 = none, 2 = very minor, 3 = minor, 4 = moderate, 5 = major, and 6 = very major.

The barrier of too little time designated for joint planning by academic and vocational or secondary and postsecondary faculty was perceived to be the most serious by respondents as indicated by a mean score of 4.50 on the six-point scale. This barrier was given a major to very major rating by 55% of the respondents, showing very similar results to our 1993 survey. The fact that the barrier had not diminished suggests that faculty, upon whom a large share of the responsibility for the actual implementation of Tech Prep often rests, still do not work together to accomplish the planning and development work necessary for Tech Prep. However, the fact that the barrier remains may suggest deeper issues such as difficulties involved in realigning school calendars or, a situation that is far more disconcerting, the possibility that these faculty groups make a deliberate choice not to collaborate.

Table 12
Barriers to Local Tech Prep Implementation in 1993 and 1995

	Level of Impact in 1992-1993								Level of Impact in 1994-1995							
	None	Very Minor	Minor	Moderate	Major	Very Major	Mean	SD	None	Very Minor	Minor	Moderate	Major	Very Major	Mean	SD
Little time for joint planning by ac. and voc. or sec. and postsec. faculty	2.8	6.4	17.6	28.8	28.6	15.8	4.20	1.25	.6	4.7	11.9	27.0	37.7	18.1	4.50	1.10
Tight budgets at the local level	—	—	—	—	—	—	—	—	3.6	7.1	12.7	20.7	31.1	24.9	4.43	1.36
Lack of staff, time, and money dedicated to Tech Prep	2.5	7.3	18.9	34.8	27.0	9.3	4.05	1.16	1.2	5.4	16.4	36.3	28.6	12.2	4.22	1.10
Tight budgets at the state level	—	—	—	—	—	—	—	—	1.5	5.9	25.2	24.3	28.5	14.5	4.16	1.21
Pressure for quick success and student head counts	16.0	12.2	16.5	25.7	17.3	12.2	3.53	1.59	5.9	9.5	16.9	26.0	24.0	17.8	4.05	1.42
Lack of recent work experience among school personnel	—	—	—	—	—	—	—	—	3.3	8.9	19.8	26.3	30.2	11.5	4.05	1.26
Belief that Tech Prep is a "fad" that will go away	4.3	10.6	21.5	33.2	21.0	9.4	3.84	1.26	1.8	8.0	22.5	29.3	28.7	9.8	4.04	1.17
Negative attitude toward Tech Prep	2.5	9.2	24.7	40.2	17.6	5.9	3.79	1.10	2.1	5.3	20.8	40.1	26.1	5.6	3.99	1.04
Difficulty in dealing with educational bureaucracies	4.3	9.5	23.3	34.5	17.6	10.7	3.84	1.26	1.2	10.1	23.7	30.6	22.6	11.9	3.98	1.20
Failure of educators to see the need to change	3.8	13.4	25.8	32.2	19.2	5.6	3.66	1.20	1.5	8.0	20.2	39.8	24.0	6.5	3.96	1.07
Lack of general awareness about Tech Prep	1.5	6.6	18.9	38.1	27.0	7.8	4.06	1.08	1.5	6.5	22.8	39.6	24.0	5.6	3.95	1.04
Lack of funds for curriculum reform	9.6	13.9	20.5	27.8	18.7	9.4	3.60	1.63	2.7	11.0	23.1	28.8	23.1	11.3	3.92	1.26
Inability of young people to make early career decisions	8.0	18.9	21.2	30.2	17.3	4.4	3.43	1.31	3.8	13.0	23.1	28.4	22.5	9.2	3.80	1.28

Table 12 (cont.)

	Level of Impact in 1992-1993								Level of Impact in 1994-1995							
	None	Very Minor	Minor	Moderate	Major	Very Major	Mean	SD	None	Very Minor	Minor	Moderate	Major	Very Major	Mean	SD
Lack of knowledge and skills among ed. personnel in how to implement educational change	3.6	10.5	23.7	37.2	19.9	5.1	3.75	1.15	2.7	10.9	23.4	38.2	17.5	7.4	3.79	1.15
Lack of counselor interest in or involvement with Tech Prep	10.3	16.4	19.7	27.9	17.4	8.2	3.51	1.43	4.7	14.7	21.2	28.9	20.6	9.7	3.75	1.32
Increased paperwork to support Tech Prep	3.6	15.8	29.8	33.6	13.2	4.1	3.49	1.14	5.6	15.6	25.4	28.0	16.8	8.6	3.60	1.32
Lack of collaboration between ac. and voc. educators	3.6	15.8	29.8	33.6	13.2	4.1	3.49	1.14	2.9	14.7	27.1	34.8	16.5	3.8	3.58	1.13
The stigma of "tracking" is associated with Tech Prep	—	—	—	—	—	—	—	—	8.6	18.6	20.6	22.7	19.2	10.3	3.56	1.46
Difficulty maintaining momentum over the long term	16.4	16.9	27.9	21.5	13.1	4.1	3.10	1.39	5.9	15.7	24.0	33.8	16.6	3.9	3.51	1.22
Lack of clear federal level policy for Tech Prep	14.0	21.1	26.4	20.3	11.9	6.3	3.14	1.42	9.2	18.5	25.9	21.4	16.7	8.3	3.42	1.41
Lack of developed competencies for the academic areas	—	—	—	—	—	—	—	—	8.3	16.1	27.1	29.2	15.5	3.9	3.39	1.26
Limits on using Tech Prep funds below grade 11	—	—	—	—	—	—	—	—	16.9	18.3	18.0	16.9	17.5	12.4	3.37	1.64
Limits on using Tech Prep funds for equipment or materials purchases	11.5	18.4	21.0	22.8	17.4	9.0	3.43	1.48	9.8	21.4	25.2	19.3	16.0	8.3	3.35	1.43
Lack of authority of local personnel to make changes	12.7	19.8	25.4	22.3	12.2	7.6	3.24	1.43	8.8	23.9	23.0	18.9	18.3	7.1	3.35	1.42
Resistance from postsec. schools to introduce Tech Prep	9.0	18.8	27.8	23.3	15.5	5.7	3.34	1.34	9.0	18.8	27.8	23.3	15.5	5.7	3.34	1.34

Table 12 (cont.)

	Level of Impact in 1992-1993								Level of Impact in 1994-1995							
	None	Very Minor	Minor	Moderate	Major	Very Major	Mean	SD	None	Very Minor	Minor	Moderate	Major	Very Major	Mean	SD
Lack of evaluation mechanisms to inform implementation	10.6	17.9	26.9	27.5	13.7	3.4	3.26	1.29	9.0	19.8	25.4	25.1	17.4	3.3	3.32	1.30
Looking at Tech Prep as voc. ed. by another name	4.1	11.5	24.9	33.6	19.8	6.1	3.72	1.20	4.2	8.7	25.3	28.0	13.1	5.1	3.31	1.31
Funding for Tech Prep limited to vocational education sources	20.3	15.2	17.5	22.8	14.5	9.6	3.25	1.61	17.1	17.8	17.8	20.7	16.9	9.8	3.31	1.59
Turf battles between secondary and postsecondary educators	9.8	20.2	33.3	22.7	9.8	4.0	3.15	1.25	9.5	19.0	25.3	28.0	13.1	5.1	3.31	1.31
Lack of parental support for Tech Prep	16.3	20.7	29.0	23.1	8.8	2.1	2.94	1.28	9.7	16.2	28.9	27.1	14.2	3.8	3.31	1.28
Lack of clear state-level policy for Tech Prep	12.1	21.2	18.7	22.5	14.6	10.9	3.39	1.53	15.2	21.1	22	14.3	15.8	11.6	3.29	1.60
Lack of student interest in Tech Prep	15.5	23.8	30.3	22.5	6.2	1.6	2.85	1.21	4.2	17.8	36.2	32.0	9.5	.3	3.25	1.00
Lack of a clear definition of the Tech Prep student	—	—	—	—	—	—	—	—	15.7	21.9	20.1	20.1	13.3	8.9	3.20	1.53
Lack of interest and support from upper-level administration	—	—	—	—	—	—	—	—	12.4	21.5	24.8	23.6	12.7	5.0	3.17	1.37
Resistance from secondary schools to introduce Tech Prep into the curriculum	9.7	20.2	27.6	30.4	9.9	2.3	3.18	1.21	9.5	18.2	33.9	26.5	10.7	1.2	3.14	1.16
Lack of jobs in the region for Tech Prep graduates	13.7	17.3	20.1	25.2	14.2	9.4	3.37	1.50	15.8	21.1	26.2	17.3	10.1	9.5	3.13	1.50
Resistance from sec. school administrators to Tech Prep	15.7	23.6	26.9	23.1	8.4	2.3	2.92	1.28	10.4	21.4	32.0	27.0	5.9	3.3	3.06	1.19

BEST COPY AVAILABLE

Table 12 (cont.)

	Level of Impact in 1992-1993								Level of Impact in 1994-1995							
	None	Very Minor	Minor	Moderate	Major	Very Major	Mean	SD	None	Very Minor	Minor	Moderate	Major	Very Major	Mean	SD
Focus on applied academics rather than other academic and vocational integration models	—	—	—	—	—	—	—	—	12.8	24.3	27.9	22.0	8.3	4.7	3.03	1.31
Conflict between Tech Prep and School-to-Work	—	—	—	—	—	—	—	—	24.5	20.6	16.4	15.2	12.8	10.4	3.02	1.67
Difficulty reaching consensus on reform strategies	12.3	27.2	29.3	20.6	8.7	1.8	2.92	1.22	8.6	23.8	34.5	25.0	6.5	1.5	3.01	1.11
Turnover of local or state leaders involved in Tech Prep	25.5	28.1	21.2	12.8	7.7	4.8	2.64	1.43	17.8	23.4	22.2	18.3	13.0	5.3	3.01	1.46
Large distances separating institutions in the consortium	—	—	—	—	—	—	—	—	22.7	22.7	15.6	17.4	12.4	9.1	3.01	1.62
Lack of clear local-level policy for Tech Prep	13.2	23.2	22.6	24.9	9.7	6.4	3.14	1.40	18.0	22.1	22.4	21.2	11.5	4.7	3.00	1.43
Conflict with other educational reform movements	22.0	26.3	24.6	17.0	6.1	4.1	2.71	1.36	15.8	25.9	22.6	19.9	10.1	5.7	2.99	1.41
Lack of certificates of mastery	—	—	—	—	—	—	—	—	20.0	19.7	25.1	18.8	12.5	3.9	2.95	1.42
Lack of active involvement from business and industry	22.6	26.4	24.4	16.8	7.6	2.3	2.67	1.32	17.7	23.6	22.4	25.7	7.4	3.2	2. 91	1.33
Failure to employ local Tech Prep coordinator full-time	42.2	7.2	12.3	13.8	13.3	11.3	2.83	1.85	37.2	11.7	9.9	16.5	13.8	10.8	2.90	1.81
Lack of support from business and industry	24.2	28.8	29.6	13.0	3.3	1.0	2.45	1.15	12.2	31.2	27.3	21.7	5.9	1.8	2.83	1.17
Resistance from academic educators to make changes for Tech Prep	2.3	14.5	25.4	31.7	21.3	4.8	3.70	1.16	13.4	30.0	27.3	21.1	7.1	1.2	2.82	1.18

Table 12 (cont.)

	Level of Impact in 1992-1993								Level of Impact in 1994-1995							
	None	Very Minor	Minor	Moderate	Major	Very Major	Mean	SD	None	Very Minor	Minor	Moderate	Major	Very Major	Mean	SD
Lack of availability of integrated ac. and voc. curriculum materials	14.5	25.7	29.3	20.9	7.9	1.8	2.87	1.23	13.6	29.1	27.3	22.8	5.3	1.8	2.82	1.18
Limitations in using Tech Prep funds beyond grades 11-14	—	—	—	—	—	—	—	—	24.7	25.3	17.9	14.6	10.7	6.8	2.81	1.55
Lack of credibility of vocational ed. involved with Tech Prep	11.9	29.9	30.7	21.1	4.1	2.3	2.82	1.15	11.3	33.8	29.1	18.1	5.9	1.8	2.78	1.15
Lack of cooperation among institutional partners	—	—	—	—	—	—	—	—	17.3	30.7	25.9	13.7	8.9	3.6	2.77	1.32
Difficulty in developing formal articulation agreements between sec. and postsec. schools	22.2	26.3	21.7	22.4	5.6	1.8	2.68	1.29	23.0	26.0	22.1	18.0	8.0	2.9	2.70	1.36
Lack of support from both state sec. and postsec. agencies	17.8	23.7	28.2	17.8	6.6	5.9	2.89	1.38	19.8	31.4	24.6	13.3	6.8	4.1	2.68	1.33
Resistance from postsec. school administrators to Tech Prep	25.3	25.3	27.1	14.8	5.1	2.3	2.56	1.28	18.4	29.4	27.6	16.3	6.8	1.5	2.68	1.22
Lack of developed competencies for the vo-tech areas	—	—	—	—	—	—	—	—	22.4	28.0	25.1	14.2	8.8	1.5	2.63	1.29
Failure of two-year postsec. schools to accommodate Tech Prep students	—	—	—	—	—	—	—	—	22.6	28.5	26.1	16.6	4.2	2.1	2.57	1.23
Lack of experts to provide inservice about Tech Prep	22.0	21.5	27.1	18.7	8.2	2.6	2.77	1.34	25.0	26.8	25.0	16.7	4.2	2.4	2.55	1.18
Lack of support from labor organizations	36.7	23.8	22.1	9.1	4.4	3.9	2.32	1.37	35.3	22.1	21.5	9.6	7.4	4.2	2.44	1.44

BEST COPY AVAILABLE

Table 12 (cont.)

	Level of Impact in 1992-1993								Level of Impact in 1994-1995							
	None	Very Minor	Minor	Moderate	Major	Very Major	Mean	SD	None	Very Minor	Minor	Moderate	Major	Very Major	Mean	SD
Lack of cooperation for state professional organizations	—	—	—	—	—	—	—	—	29.5	28.0	25.0	9.8	5.7	2.1	2.40	1.27
Too much flexibility in local implementation of Tech Prep	30.4	29.9	24.3	10.0	4.3	1.0	2.31	1.19	31.4	27.5	20.4	13.9	4.4	2.40	2.39	1.30
Too many schools in the consortium	—	—	—	—	—	—	—	—	34.0	28.1	18.3	10.7	6.2	2.7	2.34	1.34
Use of adv. placement and other articulation that allow students to complete college early	—	—	—	—	—	—	—	—	30.4	35.4	18.2	10.7	3.9	1.5	2.26	1.19
Lack of cooperation from teachers' unions	47.4	20.7	17.7	8.7	4.4	1.1	2.05	1.25	44.6	15.1	24.6	10.5	2.8	2.5	2.19	1.31
Pressure from special interest groups to modify Tech Prep	42.9	27.3	17.6	6.9	3.1	2.3	2.07	1.23	38.0	29.7	18.1	8.3	3.6	2.4	2.16	1.25
Too much state involvement in day-to-day operations	—	—	—	—	—	—	—	—	33.2.	33.8	22.0	6.5	3.9	6	2.15	1.11

BEST COPY AVAILABLE

Respondents to the 1995 survey identified seven additional barriers that were thought to have a moderate impact on Tech Prep implementation as indicated by any barrier with a mean score between 4.0 and 5.0. There were eight barriers at this moderate level in 1995 compared to 1993. The seven barriers were tight *local* budgets; lack of staff, time, and money to implement Tech Prep; failure of four-year colleges and universities to award college credit for applied academic or other Tech Prep courses; tight *state* budgets; pressure for quick success; lack of recent workforce experience among school personnel; and the belief that Tech Prep was an educational fad. Rather than falling in importance, these barriers had risen, suggesting they were even more serious in 1995 than in 1993.

Two of the barriers were an exception because they were not presented in the 1993 survey, so comparable data was unavailable. These were the barriers of tight budgets at the *local* level and lack of recent work experience among school personnel. The fact that 40% of the respondents perceived a lack of staff, time, and money to implement Tech Prep suggests the importance of resources on influencing change at the local level. Without adequate and stable funds, change becomes much more tenuous.

There is a failure of four-year colleges to award credit for Tech Prep courses according to 50% of the respondents, and this situation is perceived as having a major or very major negative impact on Tech Prep implementation. This same barrier ranked high on the 1993 survey as well, suggesting little has changed in more recent years. It seems that this kind of systemic educational policy issue must be addressed if Tech Prep curriculum is to be linked to four-year colleges in meaningful ways, as is advocated by the federal Tech Prep Education Act. Numerous reports by NCRVE and others support this concern, but to no avail (Bailey & Merritt, 1996). Results suggest that systemic reforms which involve multiple levels acting together in a coordinated fashion are not likely to happen easily or quickly, if at all.

Other barriers close to the moderate level of impact included negative attitudes toward vocational education, difficulty in dealing with educational bureaucracies, failure of educators to see the need to change, and a lack of general awareness about Tech Prep. While most of these barriers had risen in importance between 1993 and 1995, it appears that efforts to create a general awareness for Tech Prep at all levels had helped somewhat in that it was perceived to be a greater barrier in 1993 than in 1995. Other barriers rated between 3.0 and 4.0, indicating a minor to moderate level of impact, ranged from looking at Tech Prep as vocational education by another name to a lack of clear local-level policy. Categories of barriers considered to be minor included administrative, students, and professional development concerns.

Local Coordinator Recommendations for State and Federal Policy

The recommendations provided by the survey respondents as well as the field sites fell into six categories. Without question, the two most important recommendations pertain to issues surrounding *funding* and *state and federal guidance*, but survey respondents also described the need for increasing the participation of the various stakeholders in Tech Prep, such as the academic faculty, postsecondary institutions, business and industry, guidance counselors, and even Tech Prep coordinators. Also, many recommended broadening the application of Tech Prep programs to include more students earlier. One of the basic concerns had to do with the relationship between Tech Prep and STW. Many consortia wanted to see some kind of combination of effort with Tech Prep as the dominant or leading program within STW, but a few wanted to maintain a completely separate stance between Tech Prep and STW.

Local Recommendation 1: Continue Funding for Tech Prep

Among those whose recommendations relate to funding, the vast majority called for continued funding and for the opportunity to use their money more flexibly. Most respondents who pointed out the need for continued funding wanted to do so to protect fledgling efforts at Tech Prep implementation. They argued that Tech Prep "is not yet a mature program and needs federal support before states can take over leadership," and they feared that a drop in funding would eventually kill Tech Prep because local and state governments could not afford to support it. Without funding, state and federal policies "become optional guideline suggestions for programs." In the end, some feared Tech Prep would receive the most dreaded label of all: *fad.*

Consortia recommending more flexibility in spending were primarily concerned with equipment expenditures. More money was also recommended for the hiring and development of personnel such as a full-time state Tech Prep coordinator and more faculty. Given the emphasis on *continued* funding, surprisingly few consortia recommended that *increased* funds be granted. One recommendation was that Tech Prep "needs federal and state funding increases and support for the next 4-5 years to fully implement this reform movement." Increased funding was considered essential to "program development and expansion" and to "provide the necessary professional [development]."

Several consortia expressed concern for the effect of block grants on Tech Prep. These concerns included determining beforehand what percentage of the block grants would go to existing Tech Prep initiatives and what would go to STWOA-supported ones. The concern was to provide funding "blocked" for Tech Prep so secondary and postsecondary education could still work to institutionalize it.

Showing concern that Tech Prep be accountable for its share of federal funding, a small group of consortia wanted to attach new funding to performance. One respondent proclaimed, "Performance-based funding for public education! This, more than any single reform, would change the way we operate." Another respondent recommended "fund allocation for programs that can demonstrate strong and effective 2+2 commitments," and another said, "Get a firm, long-term financial commitment with evaluations that accurately reflect local consortium issues." Apparently, quality does not have to happen top-down. Rather, it can bubble up from the local level if there is a firm commitment to quality and accountability.

Local Recommendation 2: Strengthen State and Federal Leadership

State and federal leadership is very important to the surveyed consortia. They recommended that government take a more aggressive role in mandating programs and providing definite guidelines or standards in Tech Prep. Some also recommended that state and federal governments provide incentives and recognition for successful Tech Prep initiatives, though these recommendations were very much in the minority. One respondent said, "[National standards] are needed to allow groups using a variety of strategies to assess their programs on students' performance[s]." Respondents' comments suggested they had experienced some confusion in defining Tech Prep programs, an issue discussed in some depth earlier in this paper. One coordinator recommended the "clarification of terms used with Tech Prep." The sense was that consortia had struggled to achieve a relationship among the different shareholders in Tech Prep, but that these struggles could be more successful with increased government support and leadership. One respondent attempted to speak for many in recommending more clarity concerning work-based learning and Tech Prep:

> We recommend that the federal and state governments develop and promote incentives for business and industry regarding their working together with schools to implement the work experience component of the Tech Prep program. We recommend that the state do more to help local consortia with the development of work standards and competencies for establishing and implementing the different Tech Prep curricular programs.

Indeed, the state and federal governments has contributed to the complex environment in which Tech Prep is being implemented. Sharing this frustration, one respondent said,

> Implementers feel assailed by all these new mandates at both the state and local level. Strategies need to be identified which assist implementers to coordinate and integrate these pieces into an articulated whole. Establishment of communitywide partnerships with key stakeholders seems to be key. Leadership to help implementers at the local level [to] see the connections between mandates and define strategies to realize them would be very helpful.

Local Recommendation 3: Clarify the Uneasy Relationship Between Tech Prep and School-to-Work

One of the most important concerns for the surveyed consortia is the relationship between Tech Prep and the STW initiatives. Many respondents thought that Tech Prep and STW should be joined into a coherent program, but there were misgivings because of the vagaries of government policy and confusion over the proliferation of seemingly identical but uncoordinated programs. Although not the majority, some consortia made the recommendation that the two programs should remain separate because they feared that Tech Prep would disappear in the maelstrom. Representative of these recommendations were "[We need a] clear definition separate from School-to-Work"; "clearly separate the goals of Tech Prep from School-to-Work"; and "clarity must be made (*sic*) between the terms Tech Prep and School-to-Work." A few respondents discouraged any merger between the two. Although not widespread, the sense of emotion evident in these comments suggest these views should not be discounted. The following statements are representative of this perspective: "[D]o not replace Tech Prep with School-to-Work"; "[S]upport Tech Prep and [do] not move to a new bandwagon such as School-to-Work"; and "Keep it a separate issue from School-to-Work." Looking back at how STWOA was introduced once Tech Prep was underway, one respondent offered, "Tech Prep should have been expanded to reach all students and encompass School-to-Work, instead of starting another new initiative which is a broader version of Tech Prep." Having reviewed all comments, we suspect this sentiment is probably held widely by the respondents.

Local Recommendation 4: Broaden the Tech Prep Concept

Consortia recommended that the idea of Tech Prep be expanded in several ways. First, some respondents said that Tech Prep programs should be expanded to include secondary students below 10th grade, suggesting a 2+2 model: "If kids are to make a career choice by the start of 10th grade, they need career information and awareness activities long before 10th or 11th grade." Others said, "Require secondary schools to have a career portfolio for all students beginning at middle school level" and "Mandate a comprehensive (K-14) career guidance program." One coordinator suggested that Tech Prep has placed too much emphasis on special populations, resulting in a remedialization of the programs. Therefore, Tech Prep needs to return to its original emphasis on the middle majority."

A prevalent recommendation among the consortia surveyed was to urge an emphasis on "all students," expanding Tech Prep and transforming it ultimately into something more akin to career education for all students. One such recommendation was, "Tech Prep is an occupational-career curriculum open to all students whether or not they may be designated as 'vocational.'" Another supporting comment follows: "Tech Prep should be for all students. All students should be career bound and should plan for lifelong learning." The emphasis on "all students" moves Tech Prep into the mainstream and away from strictly vocational education, though it appears that the assumption underlying "all students" does not necessarily include liberal arts. Nevertheless, there are threads (admittedly somewhat obscure) among the recommendations that suggest Tech Prep could move further in that direction: "All education should be occupational as well as liberal arts—it isn't necessary to have either/or situations" and "Support for technical/vocational and School-to-Work education for students who appear to be college bound. This is the biggest hurdle we have to overcome everyone's daughter/son is going to Harvard so they don't need occupational preparation, right? Wrong. Everyone can benefit from high academic and technical education."

A related consideration behind the attempt to include "all students" is a concern over nomenclature: some consortia wish to avoid labeling students as Tech Prep because their emphasis is on career preparation. "It appears that many are concerned that Tech Prep students be identified. Have we not learned that labeling students is 'death' to a concept —it is not necessary to label students—curriculum changes that any student can enroll in by choice improves educational opportunities for all"; "We need to quit labeling students 'College Prep' or 'Tech Prep.' They are all career bound. A student in the health/human services cluster who plans on becoming a doctor needs the same core curriculum (in high school) and voc[ational] training as one pursuing a career as a lab technician. The curriculum should only change as they go into postsecondary/specialty training"; and "Drop labeling [and] move to career pathways with two-year degree as part of choice." For some, the notion of all students also refers to all grade levels: "The initiative should create systemic change in K-16 education. Therefore, policy should expand the focus to include all students at all levels."

Local Recommendation 5: Increase the Participation of Key Stakeholders

Many consortia identified a need for increased participation by various stakeholder groups. Of the many, *academic faculty* and *postsecondary institutions* were mentioned repeatedly. Academic faculty are especially crucial given the fundamental academic character of the reform, and many see increased participation among academic faculty as a necessary aspect of stabilizing it. To some, the key to involving academic faculty in Tech Prep is considered to be funding. "In addition, offering funding to academic areas to infuse technical and career components into instruction would be beneficial." Another respondent explained,

> The problem is [that] academics, for the most part, haven't caught on because it [Tech Prep] is not required of them and the funding has been through vocational channels. As a result, . . . participation and support varies based on [the] actual interest and emphasis of the administration. In our case, the interest, support, and participation of the academic side is outstanding. Tech Prep should be a required part of every education system with appropriate funding.

Aside from funding, some consortia also recognized and recommended increased cooperation between academic and vocational faculty. One respondent called for an "Inservice/staff education emphasis for administrators and *academic* faculty, specifically designed to orient toward the reform education movement." Another respondent pointed out a deeper concern surrounding academic and vocational faculty involvement: "The biggest challenge will be to get academic and vocational [faculty] to do joint planning."

Interestingly enough, three consortia in California clearly expressed the need for increased participation by academic faculty. Comments of two of these coordinators follow:

> [The] University of California acceptance of Tech Prep courses would establish credibility of applied academics with traditional academic faculty. . . . All academic and vocational faculty should be required to participate in the integration of academic and vocational curriculum.
>
> Secondary and postsecondary faculty and administrative cooperation has been sluggish. Little motivation for them, [and] slow progress for us. This could have been facilitated at the state level and saved much time and effort, i.e., [the] California Department of Education could have attached some secondary funding to cooperation or at least have given high schools strong encouragement to participate.

Coordinators also want to see *business and industry* take a more active role in Tech Prep development. Business and industry organizations are recognized as important stakeholders in Tech Prep, and recommendations for increasing their involvement are made by several consortia. One respondent recommended "a stronger commitment from the private sector related to hiring and promoting employees with certificates." At least one consortium suggested that the government could have a hand in encouraging this stronger commitment: "We recommend that the federal and state governments develop and promote incentives for business and industry regarding their working together with schools to implement the work experience component of the Tech Prep program." One incentive could be to "offer tax incentives and other breaks (workers' compensation) to businesses who provide work-based learning opportunities."

Bringing the *guidance counselors* into a more active role in Tech Prep is one way to increase the impact of Tech Prep as an educational reform, according to respondents. One suggested the need to "Mandate a comprehensive (K-14) career guidance program [that is] focus[ed] on [the] program, not the position of the counselor (a counselor is a proactive player in the overall program). Advisor/adviser a must, but provide staff development for training." Another said, "Federal policy should mandate high school counselors to require students to make career choices. Most counselors are the slowest individuals to change old habits of doing business." Even though counselor inservice is an "essential element" of the Tech Prep law, respondents indicated more is necessary. Several comments documented by the survey are "One weakness is motivation and acceleration of our guidance counselors into the Tech Prep program. More training for these people would help"; "More emphasis needs to be placed on educational planning and counselor function"; and "Aim at principals and guidance counselors and help people learn how to change systems."

Developing some kind of nationally based support system for *Tech Prep coordinators* is also an important part of expanding Tech Prep reforms to include a broader group. One respondent offered, "Most importantly, this state needs a proactive and involved Tech Prep coordinator to solidify and unify Tech Prep efforts." Other respondents emphasized that improving the Tech Prep coordinator position requires training, funding, and government leadership: "It has taken me three years of involvement in Tech Prep and one year of coordinating a Tech Prep project to learn what could have been taught in a workshop dedicated to training Tech Prep participants." Another said, "[The] secondary system should be required to hire a full-time Tech Prep coordinator; of course, funds should be provided to [the] local system for that purpose"; "A coordinator is a must. Part of the grant should include funding for a full-time Tech Prep coordinator"; and "State guidelines allow for only one coordinating position per county—this currently presents serious constraints on the level that does not received the funding, i.e., secondary and postsecondary."

Local Recommendation 6: Heighten Awareness About Tech Prep

Some consortia determined that some kind of national marketing objective or "national awareness program" be agreed upon and pursued with respect to Tech Prep: "Educators need to sell best practices and especially bring parents and counselors on board." A few consortia suggested that Tech Prep should be marketed differently from vocational education so as to not mix Tech Prep with the image of a vocational program. Marketing initiatives should "promote data showing positive impact, if available, and/or publish positive testimonials." Others wanted to see some kind of statewide or national development of recruitment tools: "Too much re-creating the wheel—articles for newspapers, etc.—[we need] more vehicles for sharing."

Part of the reason for marketing Tech Prep to the general public is again to avoid the impression that Tech Prep is a fad that will soon be gone from the educational scene, as well as to emphasize that Tech Prep is an educational reform that affects all segments of the population. One coordinator thought it important to "work on internal marketing within [an] educational hierarchy so that Tech Prep is viewed as a high-quality program rather than [as] 'another vocational program.'" A particular concern to some was the need to demonstrate to "superintendents and school board members that Tech Prep/School-to-Work is not just another initiative that will come and go," and to "state and national (Congress) politicians [who] need correct info[rmation] on how and why a program was set up. . . . [It] needs to be sold to national educational organizations and unions which teachers belong to." Some considered the marketing of Tech Prep a government responsibility: "[The] state and feds need to promote Tech Prep much more through marketing and grassroots information elements."

CONCLUSIONS

Though the idea of Tech Prep (Technical Preparation) was launched well over a decade ago with dissemination of *The Neglected Majority* (Parnell, 1985) and *The Unfinished Agenda* (National Commission on Secondary Vocational Education, 1984), few communities adopted it (McKinney, Fields, Kurth, & Kelly, 1988). Many did not understand it fully. Others did, but they elected to continue existing practices. It was not until passage of the Tech Prep Education Act, as part of the Carl D. Perkins Vocational and Applied Technology Act of 1990, that attention was drawn to Tech Prep on a widespread (national) scale. Beginning in 1991 or 1992, federal grants for Tech Prep planning and implementation flowed to the states and local regions to encourage the establishment of core secondary and postsecondary, academic and vocational curricula, known as Tech Prep. Once distributed to the states, federal funds—averaging about $100,000 per consortium to be divided among about twelve high schools and one or two community colleges—were available to implement changes. Although small in scale, these grants signaled the importance of restructuring both the academic and vocational curriculum to meet the needs of a wider spectrum of students.

Once federal funding was obtained, a regional (local) consortium was formed consisting of multiple secondary schools, a community college or two, and several employers. Typically, these partners launched Tech Prep by designing sequential core curriculum, starting with updates to vocational education and later changes to traditional academics, usually by adding applied academics. Simultaneously or soon thereafter, consortia began forging articulation agreements between high schools and community colleges (usually focusing on vocational courses rather than integrated academic/vocational programs). Few four-year colleges, labor organizations, or community-based organizations have been active partners in local Tech Prep consortia. Instead, high schools and two-year colleges have been the mainstay. As such, Tech Prep has simulated other educational reforms that have focused largely on internal issues within schools, attempting to revise and restructure curriculum (Nielsen Andrew & Grubb, 1992). Where Tech Prep has been unique in is its attempt to restructure curriculum by integrating across academic and vocational education, a strategy that is commendable yet enormously complex and time-consuming. (For further discussion, see articles by Bragg, Gregson, Grubb, Owens, and Phelps, all appearing in a 1997 special issue of the *Journal of Vocational Education Research.*)

A great deal of variation in goals and approaches is evident in local implementation efforts under an ever-expanding Tech Prep umbrella. Part of this variation is due to the necessity to help make Tech Prep fit a particular local context; however, some variation can be attributed to ambiguity in the language in the federal legislation that links Tech Prep simultaneously to workforce preparation as well as high school reform, where vocational preparation is given less and less attention. Further, the federal legislation did not specify a target population, nor did it encourage participation by "all students" as does the STWOA bill. Rather, the federal legislation called for "equal access for special populations," noting "dropout rates of 50% or higher for high school students in urban schools and for Hispanic youth" (Bragg et al., 1994, p. 4). Such language left the impression that Tech Prep was geared for at-risk students or the so-called "noncollege bound." Yet, by its very nature, Tech Prep is a college preparatory initiative. In practice, few local consortia limited access to Tech Prep programs or classes; however, many followed the guidance of Parnell (1985) and other experts (Hull & Parnell, 1991) to attempt to attract the middle majority (25th to 75th percentile), believing this group was short-changed by prior school reforms (and resources) focused on either the four-year college-bound or the special population student. Some consortia focused on an even more highly academically prepared student, marketing to the 50th to 75th percentile, recognizing that these students are more likely to be prepared for the transition from high school to two- or four-year college. In these early years, few Tech Prep consortia stated explicitly that Tech Prep was for all students; however, this perspective is changing.

Over time, research shows a shift in the focus and philosophy surrounding Tech Prep, although it is clear that some local officials see Tech Prep today the same as they did four to six years ago. When the vision of Tech Prep is broadened, a wider range of ideas, methods, and approaches come into focus than were originally hypothesized by either Parnell (1985) or the federal Tech Prep Education legislation. This shift in perspective and scope is evident in the work of some local Tech Prep consortia (certainly not all) as well as in selected writings of the U.S. Department of Education (Harkin, Beaulieu, Brooks, & Cossaro, 1996). Illustrative of this broader view of Tech Prep, we have found an increased use of 4+2 or 2+2+2 curriculum models where core coursework is extended downward to the 9th grade year or upward to include the final two years of a four-year college education. A shift in perspective is also apparent in the use of alternative models of academic and vocational integration, either in addition to or instead of applied academics—an integration approach that has become synonymous with Tech Prep. Linked courses and block scheduling, interdisciplinary courses, and learning communities evidenced in career academies and youth apprenticeships seem more likely to be associated with Tech Prep now than in the past. Improvements in vocational education itself are also apparent, admittedly much more so at the secondary than postsecondary level. Secondary vocational education has benefited from Tech Prep when logical relationships are developed to the postsecondary level, when advanced academics (mathematics, science, or English/ communications) are required, and when individual educational and career planning is connected to broad career pathways (also called clusters or majors), leaving specialized professional-technical preparation for two- or four-year college or beyond.

In moving toward this broader vision, the distinctions between Tech Prep and recent initiatives spawned by STWOA become much less clear and, therein, lies a serious policy dilemma. Should Tech Prep retain its distinctiveness within the broader youth-oriented school-to-work or adult-oriented workforce development arenas? Should it become one of several options, taking its place alongside youth apprenticeships or career academies? Or, should Tech Prep fade into the milieu, allowing various meritorious elements to evolve unencumbered by prior ideology or politics? Recommendations of local coordinators endorse the idea of maintaining a unique identity and continued federal funding for Tech Prep to ensure new processes and procedures are sustained, whether linked to STWOA or not. We endorse this recommendation and also believe that it is important for distinct federal funding to continue to ensure that recent breakthroughs associated with Tech Prep are not reversed. However, we also think that local and state funding should increase dramatically to encourage local buy-in, further enhancing opportunities to institutionalize various principles and elements that characterize the Tech Prep reform. Whether the Tech Prep label sticks is far less important than whether sound educational or school-to-work practices live on. No doubt, all students can benefit from curriculum integration that enhances lateral mobility across tracks and curriculum articulation that improves upward mobility into postsecondary education. Whenever and wherever Tech Prep proves successful in enhancing student outcomes, it deserves not only continued but increased funding. Increased accountability for students outcomes is essential. Therefore, performance-based funding should be emphasized in future Tech Prep or STWOA policies.

In many respects, Tech Prep and related innovations such as STW ask people to think in very different ways about education. These reforms ask people to stop thinking that, for far too many students, formal education should stop at high school graduation; that only a fraction of the high school population can and should go to college; that this same small group of students is the only one that can and should be challenged academically; that liberal studies should be disconnected from career preparation; or that good teaching occurs only within the confines of schools. To stop thinking in such ways and start seeing all of education (secondary and postsecondary) through a new lens challenges deep beliefs about what "real school" is all about (Tyack & Cuban, 1995, p. 9). Similarly to historian's Tyack and Cuban, we believe that our nation should commit itself to improving education—not just tinkering with reform—by first recognizing the overwhelming challenges associated with making fundamental changes in education, and then by investing in systemic reforms that demonstrate valuable benefits for all students. By continuing to support Tech Prep and enhancing evaluation of it, we can determine the impact Tech Prep is having on the lives of students. With so much invested already, we owe it to ourselves and the nation to make that commitment.

REFERENCES

American Association of Community Colleges (AACC). (1997). *Request for proposals: 1998 Tech Prep awards.* Washington, DC: Author.

Badway, N., & Grubb, W. N. (1997). *A sourcebook for reshaping the community college: Curriculum integration and multiple domains of career preparation* (MDS-782). Berkeley: National Center for Research in Vocational Education, University of California at Berkeley.

Bailey, T., & Merritt, D. (1996). *School-to-work for the college bound* (MDS-799). Berkeley: National Center for Research in Vocational Education, University of California at Berkeley.

Boesel, D., Rahn, M. L., & Deich, S. (1994, July). *Final report to Congress, Volume III, Program improvement: Education reform.* Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement.

Bolt, L., & Swartz, N. (1997, Spring). Contextual curriculum: Getting more meaning from education. In E. I. Farmer & C. B. Key (Eds.), *School-to-work systems: The role of community colleges in preparing students and facilitating transitions* (*New Directions for Community Colleges* series, No. 97) (pp. 81-88). San Francisco: Jossey-Bass.

Bragg, D. D. (1997a). *Educator, student and employer priorities for Tech Prep outcomes* (MDS-790). Berkeley: National Center for Research in Vocational Education, University of California at Berkeley.

Bragg, D. D. (1997b). Grubb's case for compromise: Can 'education through occupations' be more? *Journal of Vocational Education Research*, *22*(2), 115-122.

Bragg, D. D., & Hamm, R. E. (1996). *Linking college and work: Exemplary policies and practices of two-year college work-based learning programs* (MDS-795). Berkeley: National Center for Research in Vocational Education, University of California at Berkeley.

Bragg, D. D., Hamm, R. E., & Trinkle, K. A. (1995, February). *Work-based learning in two-year colleges in the United States* (MDS-721). Berkeley: National Center for Research in Vocational Education, University of California at Berkeley.

Bragg, D. D., Layton, J. D., & Hammons, F. (1994). *Tech Prep implementation in the United States: Promising trends and lingering challenges* (MDS-714). Berkeley: National Center for Research in Vocational Education, University of California at Berkeley.

Dillman, D. (1978). *Mail and telephone surveys: The total design method.* New York: John Wiley and Sons.

Dornsife, C. (1992). *Beyond articulation: The development of Tech Prep programs* (MDS-311). Berkeley: National Center for Research in Vocational Education, University of California at Berkeley.

Gregson, J. (1997). A critical response to Grubb. *Journal of Vocational Education Research, 22*(2), 123-132.

Grubb, W. N. (1997). Not there yet: Prospects and problems for "education through occupations." *Journal of Vocational Education Research, 22*(2), 77-94.

Grubb, W. N., Badway, N., Bell, D., Kraskouskas, E. (1997). *Community college innovations in workforce preparation: Curriculum integration and Tech Prep* (MDS-783). (This report is a result of a collaborative effort among NCRVE, the League for Innovation in the Community College, and the National Council for Occupational Education.) Berkeley: National Center for Research in Vocational Education, University of California at Berkeley.

Guba, E., & Lincoln, Y. (1985). *Naturalistic inquiry.* Beverly Hills, CA: Sage.

Harkin, G., Beaulieu, M., Brooks, N., & Cossaro, K. (1996). *Tech Prep concept paper.* Washington, DC: U.S. Department of Education, Office of Vocational and Adult Education, Division of Vocational Technical Education.

Hershey, A., Owens, T., & Silverberg, M. (1996). *Promising practices in Tech Prep: Local solutions to common problems.* Princeton, NJ: Mathematica Policy Research, Inc.

Hershey, A., Silverberg, M., & Owens, T. (1995). *The diverse forms of Tech Prep: Implementation approaches in ten local consortia.* Princeton, NJ: Mathematica Policy Research, Inc.

Hull, D., & Parnell, D. (Eds.). (1991). *Tech Prep associate degree: A win/win experience.* Waco, TX: Center for Occupational Research and Development.

Illinois Task Force on Integration. (1997, October). *Academic and occupational integration at the community college.* Springfield: Illinois Community College Board.

Law, D. (1994). *Tech Prep education: A total quality approach.* Lancaster, PA: Technomic Publishing Co., Inc.

Layton, J., & Bragg, D. D. (1992). Initiation of Tech Prep by the fifty states. In D. D. Bragg (Ed.), *Implementing Tech Prep: A guide to planning a quality initiative* (MDS-241) (pp. 4-1–4-18). Berkeley: National Center for Research in Vocational Education, University of California at Berkeley.

McKinney, F., Fields, E., Kurth, P., & Kelly, F. (1988). *Factors influencing the success of secondary/postsecondary vocational-technical education articulation programs.* Columbus: National Center for Research in Vocational Education, Ohio State University.

Merriam, S. (1988). *Case study research in education: A qualitative approach.* San Francisco: Jossey-Bass.

Mt. Hood Regional Tech Prep Consortium. (1996, November). *Blueprint for Success: Strengthening school-to-work in Oregon and the nation.* A presentation at the Work Now and in the Future 13 Conference in Portland, Oregon.

National Commission on Secondary Vocational Education. (1984). *The unfinished agenda*. Columbus: National Center for Research in Vocational Education, Ohio State University.

Nielsen Andrew, E., & Grubb, W. N. (1992). *Making high schools work: Patterns of school reform and the integration of vocational and academic education* (MDS-253). Berkeley: National Center for Research in Vocational Education, University of California at Berkeley.

Owens, T. (1997). On the way: A journal toward work-relevant education. *Journal of Vocational Education Research*, *22*(2), 95-106.

Parnell, D. (1985). *The neglected majority*. Washington, DC: Community College Press.

Phelps, A. (1997). "Education through occupations": Challenge of developing consensus through experience. *Journal of Vocational Education Research*, *22*(2), 107-114.

Reynolds High School. (1997). *1997-1998 program of studies: Reynolds High School*. Troutdale, OR: Author.

Silverberg, M. (1996). *The continuing development of local Tech-Prep initiatives*. Princeton, NJ: Mathematica Policy Research, Inc.

Silverberg, M., & Hershey, A. (1995). *The emergence of Tech Prep at the state and local levels*. Princeton, NJ: Mathematica Policy Research, Inc.

Tyack, D., & Cuban, L. (1995). *Tinkering toward utopia*. Cambridge, MA: Harvard University Press.

U.S. Congress, Office of Technology Assessment. (1995, September). *Learning to work: Making transition from school to work* (OTA-HER-637). Washington, DC: U.S. Government Printing Office.

Walleri, D. (1994). *Assessment of 2+2 in the Mt. Hood regional consortium: Summary of preliminary findings and proposal for additional research*. Gresham, OR: Mt. Hood Community College.

APPENDIX A
AGGREGATED RESPONSES TO 1993 TECH PREP IMPLEMENTATION SURVEY

Survey Instructions for Tech Prep Coordinators
Since passage of the federal Tech Prep legislation, local consortia have been forming across the United States. The National Center for Research in Vocational Education (NCRVE) is conducting research to better understand how Tech Prep is progressing nationwide and to identify barriers that need to be overcome in future implementation efforts. Your consortia has been randomly selected from all local consortia throughout the country to be part of this survey. We need your assistance to determine how Tech Prep is being implemented at your site.

You may be assured complete confidentiality regarding your responses to this questionnaire. An identification number appears on the questionnaire for mailing purposes only. Your name will never be placed on the questionnaire and your responses will only be reported in aggregate form.

The survey has five parts and it is essential that you provide responses to the questions in all the parts of the questionnaire. The five parts are . . .

1. Part I: Tech Prep Goals & Outcomes
2. Part II: The Stage of Implementation of Tech Prep
3. Part III: Barriers to Tech Prep Implementation
4. Part IV: Tech Prep Consortium Characteristics
5. Part V: Tech Prep Coordinator Background

Most questions require you circle responses. A few questions require you print a short answer. Typing is not necessary. Respondents in the pilot of this survey reported completion time ranged between forty-five minutes and one hour.

If any problems or questions arise as you complete the survey, please refer them immediately to

Debra Bragg	(217) 333-0807 or (217) 244-4260	Fax: (217) 244-5632
James Layton	(217) 333-0807 or (217) 244-3537	Fax: (217) 244-5632

Once you have completed the questionnaire, please mail it to us as quickly as possible—*no later than June 30, 1993.* The enclosed pre-addressed envelope is included for your convenience. Should you use other cover, please send your survey to

Dr. Debra Bragg
NCRVE Site, University of Illinois
344 Education Building
1310 S. Sixth Street
Champaign, IL 61820

PART I: TECH PREP GOALS AND OUTCOMES

Q-1. Which of the following components of Tech Prep is *formally stated in writing* in a mission statement, proposal, policy, plan, marketing brochure, or other official document(s) as the focus of your consortium's Tech Prep initiative?

Tech Prep Component	YES	NO
1. Common core curriculum in math, science, and communications (including applied academics) and technologies leading to an associate degree, certificate, or apprenticeship in a career field *(n=393)*	91.9%	8.1%
2. New teaching methods such as cooperative learning appropriate for varied student needs and learning styles *(n=385)*	71.9%	28.1%
3. Integrated academic and vocational curriculum *(n=390)*	95.6%	4.4%
4. Alternative learner assessment (e.g., performance assessment, portfolios) *(n=185)*	60.5%	39.5%
5. Career guidance, including career awareness and exploration *(n=393)*	93.6%	6.4%
6. Formal articulation agreements to create 2+2 program-area course sequences between secondary and postsecondary schools *(n=391)*	96.4%	3.6%
7. Work-based learning experiences (e.g., youth apprenticeships, cooperative education, school academies) *(n=384)*	67.7%	32.3%
8. Employment assistance and job placement services *(n=380)*	46.8%	53.2%
9. Equal access to the full range of Tech Prep for special populations *(n=393)*	91.9%	8.1%
10. Preparatory services for all participants in Tech Prep *(n=377)*	78.5%	21.5%
11. Joint inservice training for teachers from the entire consortium *(n=388)*	89.9%	10.1%
12. Training programs for counselors designed to enable them to recruit students and ensure they complete programs and obtain employment *(n=388)*	82.5%	17.5%
13. Collaboration between educators and employers to enhance education *(n=385)*	92.5%	7.5%
14. Marketing of Tech Prep programs *(n=386)*	87.0%	13.0%
15. Other responses: Internships, work experience, mentorships; program evaluation; curriculum articulation, alignment, applied academics, common core, integration; adult bridge programs; career development, pathways, centers *(n=45)*		

Note: Due to the omission of response categories for item 4, the findings for this category are likely to underrepresent actual activity. Therefore, readers are urged to interpret and report statistics related to alternative learner assessment cautiously.

Q-2. There are many reasons to implement Tech Prep. Briefly state the *one primary goal* of your Tech Prep initiative.

36%	Workforce, technology, and career preparation
17%	Reform secondary education
16%	Reach student groups
13%	Continue to postsecondary education
13%	Options beyond high school
5%	Other goals

Q-3. During the 1992-1993 academic year, which of the following *types of committees or teams* operated (e.g., held meetings, developed policy) in your Tech Prep consortium? *(Circle all that apply.) (n=397)*

Committee or Team Type	**YES**	**NO**
1. Executive committee/Governing board	77.6%	22.4%
2. Advisory committee	74.8%	25.2%
3. Planning	72.3%	27.7%
4. Curriculum	86.4%	13.6%
5. Evaluation	36.8%	63.2%
6. Promotion/marketing	60.7%	39.3%
7. Staff development	68.3%	31.7%
8. Counseling/guidance	63.5%	36.5%
9. Business/industry collaboration	70.0%	30.0%
10. Implementation	45.1%	54.9%
11. Other responses: Steering committee, leadership, administration, applied academics, special populations/needs, maintenance, career awareness/guidance, integration, school to work	11.3%	88.7%

Q-4. Did your consortium have site-based committees or teams at participating secondary and postsecondary schools in the consortium during the 1992-1993 academic year? *(Circle one response.) (n=395)*

43.5%	YES, at some schools
27.3%	YES, at all schools
18.2%	NO, but plans call for site-based committees/teams in the future
6.8%	NO, and there are no plans for site-based committees/teams in the future
4.1%	Other

Q-5. Which of the following class rank percentiles best describes the *primary target group(s)* of students for your Tech Prep initiative? *(Circle all that apply.) (n=389)*

45.5%	25th-75th
23.0%	50th-75th
10.5%	All percentiles
5.9%	25th-50th
5.6%	25th-100th
1.8%	50-100th
3.8%	0-75th
1.5%	Other
1.0%	75th-100th
0.8%	0-25th

Q-6. During the 1992-1993 academic year, which vocational education program areas were part of the Tech Prep curriculum reform efforts? *(Circle all that apply.) (n=397)*

Vocational Program Areas	**YES**	**NO**
1. Agriculture	27.7%	72.3%
2. Business and Office	79.3%	20.7%
3. Health Occupations	50.6%	49.4%
4. Marketing/Distributive Education	31.5%	68.5%
5. Occupational Home Economics	22.7%	77.3%
6. Consumer and Homemaking	13.6%	86.4%
7. Trade & Industrial	61.0%	39.0%
8. Industrial Technology Education	57.9%	42.1%
9. Other	16.1%	83.9%

Q-7. During the 1992-1993 academic year, which of the following represent(s) the focus of Tech Prep curriculum reform efforts that occurred in your consortium at the *secondary and postsecondary* levels? *(Circle all that apply.)*

Curriculum Reform Effort	**At the *secondary* level during ‘92-‘93?**		**At the *postsecondary* level during ‘92-‘93?**	
	Yes	No	Yes	No
Supplement existing vocational-technical courses with academic content *(n=368/305)*	76.1%	23.9%	42.6%	57.4%
Supplement existing academic courses with vocational-technical content *(n=369/297)*	72.1%	27.9%	34.3%	65.7%
Add applied academic courses (commercially or locally developed) to the existing curriculum *(n=381/305)*	86.4%	13.6%	37.7%	62.3%
Replace parts of the existing curriculum with applied academic courses (commercially or locally developed) *(n=375/298)*	77.9%	22.1%	29.9%	70.1%
Coordinate academic and vocational-technical courses by sequencing and reinforcing related content, often through block scheduling *(n=368/300)*	56.5%	43.5%	32.0%	68.0%
Provide interdisciplinary courses combining vocational-technical and academic content (e.g., History of Work) *(n=364/301)*	37.4%	62.6%	22.3%	77.7%
Organize academic and vocational-technical courses around occupational/career clusters *(n=373/310)*	68.9%	31.1%	51.6%	48.4%
Provide academies combining courses from vocational-technical areas and math, science, communications, and other academic areas *(n=363/296)*	39.9%	60.1%	23.3%	76.7%
Articulate academic program-area course sequences between the secondary and postsecondary levels *(n=368/331)*	69.6%	30.4%	69.2%	30.8%
Articulate vocational-technical program-area course sequences between the secondary and postsecondary levels *(n=382/335)*	89.5%	10.5%	88.1%	11.9%
Add advanced-skills courses to the existing curriculum *(n=355/306)*	40.6%	59.4%	35.3%	64.7%
Provide work-based learning outside the formal structure of schools as a significant portion of student learning (e.g., internship, apprenticeship) *(n=366/309)*	46.2%	53.8%	39.8%	60.2%
Other responses: Transitional courses at postsecondary level, core curriculum/competencies, add/incorporate SCANS, develop TQM component; infuse career skills in state-mandated curricula, enhance student assessment, Career Awareness; youth apprenticeship, work experience; language remediation assistance; align secondary curriculum; improve technical associate degree; DACUM *(n=32)*				

BEST COPY AVAILABLE

Q-8. Which educational reforms were implemented in *any* participating secondary or postsecondary schools in your Tech Prep consortium during the 1992-1993 academic year? *(Circle all that apply.)*

	YES	NO
1. America 2000 initiative	39.3%	60.7%
2. Secondary school reforms (e.g., Coalition of Essential Schools, Effective Schools)	42.6%	57.4%
3. Postsecondary/higher education reforms (e.g., multicultural, general education reform)	28.0%	72.0%
4. School-to-work transition reforms (e.g., youth apprenticeship, school academies)	38.3%	61.7%
5. Total Quality Management (TQM) (e.g., quality improvement, employee involvement)	41.6%	58.4%
6. Other responses: Integration, SCANS, SREB, Beacon School initiative, outcomes-based education, cooperative learning, state reform initiatives, competency-based education, Quality schools, cooperative work experience, site-based management	15.6%	84.4%

Q-9. Tech Prep could impact secondary and postsecondary students in many different ways. Review the following list of student outcomes and indicate the level of priority that your Tech Prep consortium gives to each outcome. *(Circle 9 only if the outcome is Not Applicable [NA] to your Tech Prep initiative.)*

	Level of Priority *(Circle the one best response)*					
Student Outcome	Very Low	Low	Moderate	High	Very High	NA
Improved knowledge and skills in English/communications *(n=392)*	0.0%	1.0%	8.9%	35.7%	53.8%	0.5%
Increased interpersonal skills (e.g., team and leadership skills) *(n=392)*	0.0%	1.8%	15.8%	39.0%	42.6%	0.8%
Increased problem-solving, thinking, and reasoning skills *(n=393)*	0.0%	1.3%	2.8%	33.3%	61.8%	0.8%
Improved knowledge and skills in math *(n=394)*	0.3%	0.3%	5.1%	30.2%	63.7%	0.5%
Improved knowledge and skills in science *(n=393)*	0.5%	1.3%	9.7%	36.4%	51.7%	0.5%
Increased knowledge and skills in vocational-technical areas *(n=393)*	0.3%	0.8%	7.9%	37.7%	52.9%	0.5%
Increased self-esteem *(n=394)*	0.5%	2.0%	24.1%	39.6%	32.5%	1.3%
Increased motivation for learning *(n=392)*	0.0%	0.8%	11.2%	39.3%	48.0%	0.8%
Improved employability skills and work readiness *(n=394)*	0.3%	1.0%	4.1%	33.2%	60.9%	0.5%
Increased awareness of and interest in technical careers *(n=392)*	0.5%	0.8%	6.4%	38.8%	53.3%	0.3%
Increased secondary school completion rate *(n=392)*	0.5%	2.0%	15.1%	33.2%	47.7%	1.5%
Increased matriculation from secondary to postsecondary levels *(n=393)*	0.3%	0.5%	7.6%	35.4%	55.5%	0.8%
Increased postsecondary school completion rate *(n=394)*	1.0%	2.8%	18.8%	37.1%	36.5%	3.8%
Increased matriculation from two-year to four-year college *(n=390)*	2.6%	14.4%	39.5%	25.4%	11.5%	6.7%
Increased job placement rate *(n=392)*	0.8%	4.3%	21.7%	39.0%	30.6%	3.6%
Increased employability in high-wage jobs *(n=392)*	0.5%	2.3%	20.4%	40.1%	32.9%	3.8%
Increased satisfaction of students/graduates with jobs *(n=392)*	0.8%	4.1%	21.4%	37.5%	32.7%	3.6%

Q-10. Thinking about your overall experience with Tech Prep implementation thus far, how would you describe support for Tech Prep from the following interest groups? *(Circle 9 only if the interest group is Not Applicable [NA] to your Tech Prep initiative.)*

	Level of Support *(Circle the one best response)*				
Interest Group	Poor	Fair	Good	Excellent	NA
Academic faculty *(n=394)*	4.3%	30.5%	43.7%	21.1%	0.5%
Vocational faculty *(n=395)*	1.3%	8.9%	38.5%	51.1%	0.3%
Counselors *(n=395)*	5.3%	26.1%	43.0%	25.1%	0.5%
Local secondary administrators *(n=395)*	2.5%	17.0%	41.3%	39.2%	0.0%
Local two-year postsecondary administrators *(n=395)*	1.5%	11.4%	36.2%	50.4%	0.5%
Business/industry representatives *(n=394)*	2.3%	10.2%	37.6%	47.2%	2.8%
Labor union representatives *(n=386)*	7.5%	13.7%	13.2%	11.9%	53.6%
State agency personnel *(n=393)*	2.5%	9.2%	30.3%	53.7%	4.3%
Four-year college/university personnel *(n=391)*	20.2%	25.6%	23.0%	6.9%	24.3%
Secondary school board members *(n=393)*	3.6%	20.6%	39.1%	31.2%	5.6%
College trustees *(n=387)*	9.3%	14.5%	24.3%	20.2%	31.8%
Students *(n=391)*	2.0%	14.6%	48.3%	25.3%	9.7%
Parents *(n=388)*	2.3%	20.4%	48.5%	19.1%	9.8%

PART II: THE STAGE OF IMPLEMENTATION OF TECH PREP

Q-11. This question focuses on the stage of implementation of components of your Tech Prep initiative. For each component, indicate the stage of implementation of the *most typical* organization(s) in your local consortium. The stages of implementation are as follow:

1 *Not Begun*: This stage indicates the component has not been addressed.
2 *Planning*: This stage includes goal setting, staff orientation, the formation of committees and teams, and the development of plans for a component.
3 *Development*: This stage involves such activities as reviewing, designing, creating, and field testing a component.
4 *Initial Implementation*: This stage occurs when plans and products of the developmental stage begin to be carried out for a component.
5 *Advanced Implementation*: This stage occurs when a component is routinely carried out, regularly reviewed and evaluated, and institutionalized so that it continues even if current leaders are no longer responsible for Tech Prep.
9 *Not Addressed (NA)*: This category indicates that your consortium does not intend to include the component in its Tech Prep initiative.

	Stage of Implementation *(Circle the one best response)*					
Tech Prep Component	Not Begun	Plan	Develop	Initial Implement	Advanced Implement	NA
Consortium building (including recruiting schools, colleges, employers, and other organizations) *(n=395)*	0.8%	7.1%	10.4%	43.8%	37.2%	0.8%
Site-based planning and decisionmaking for Tech Prep *(n=393)*	3.3%	15.8%	20.6%	39.9%	18.3%	2.0%
Team building to facilitate Tech Prep planning and implementation *(n=395)*	1.5%	9.9%	18.7%	46.1%	23.3%	0.5%
Long-range and/or strategic planning for Tech Prep *(n=392)*	3.8%	13.3%	25.8%	39.5%	17.1%	0.5%
Formal partnerships with business and industry *(n=394)*	7.9%	20.6%	30.2%	27.4%	13.5%	0.5%
Joint inservice of secondary and postsecondary personnel (e.g., faculty, counselors, administrators) *(n=395)*	4.1%	8.6%	16.2%	44.6%	26.6%	0.0%
Inservice training of counselors in recruitment, placement, and retention of students for Tech Prep *(n=395)*	4.1%	19.2%	21.5%	39.5%	15.2%	0.5%
Workplace professional development experiences for teachers and counselors *(n=394)*	18.0%	18.5%	20.6%	29.7%	11.7%	1.5%
Joint planning time for academic and vocational teachers *(n=393)*	17.3%	26.0%	22.1%	23.2%	9.4%	2.0%
Collaboration between academic and vocational educators *(n=395)*	5.6%	19.5%	29.1%	30.9%	14.4%	0.5%
Formal signed articulation agreement(s) between secondary and postsecondary schools *(n=396)*	4.0%	8.3%	12.4%	31.6%	42.7%	1.0%

Tech Prep Component	Stage of Implementation (Circle the one best response) Not Begun	Plan	Develop	Initial Implement	Advanced Implement	NA
Labor market analysis to inform curriculum development *(n=393)*	15.3%	15.5%	20.1%	27.5%	18.6%	3.1%
Development of 2+2 core academic and technical curriculum *(n=395)*	2.5%	15.9%	20.8%	38.5%	21.8%	0.5%
Development of *advanced-skills* technical curriculum *(n=393)*	22.1%	23.2%	21.1%	23.9%	7.9%	1.8%
Integration of academic and vocational *secondary* curriculum *(n=395)*	4.3%	17.7%	31.6%	34.9%	10.6%	0.8%
Integration of academic and vocational *postsecondary* curriculum *(n=387)*	19.1%	25.3%	23.3%	21.2%	7.8%	3.4%
Use of outcomes-based education for Tech Prep *(n=391)*	13.3%	24.0%	24.8%	25.8%	9.5%	2.6%
Use of new instructional strategies (including cooperative learning approaches) *(n=396)*	7.1%	22.7%	25.5%	31.1%	12.1%	1.5%
Alternative assessments (e.g., portfolios, performance assessment) *(n=390)*	17.9%	26.2%	22.6%	23.1%	7.7%	2.6%
Career awareness and exploration for students in Tech Prep *(n=395)*	7.3%	21.8%	24.8%	29.9%	15.9%	0.3%
Work-based learning for students (e.g., internships, apprenticeships) *(n=395)*	20.3%	27.3%	23.5%	19.5%	7.1%	2.3%
Apprenticeships spanning secondary and postsecondary education *(n=393)*	37.9%	29.5%	15.3%	8.1%	2.5%	6.6%
Job placement services for students/graduates *(n=391)*	32.0%	22.0%	13.6%	14.8%	12.8%	4.9%
Marketing and promotions *(n=396)*	6.3%	16.2%	23.7%	32.8%	20.5%	0.5%
Guidance and counseling services *(n=396)*	5.8%	22.2%	27.3%	31.8%	12.6%	0.3%
Equal access for all students *(n=397)*	3.3%	17.2%	18.0%	32.4%	28.9%	0.3%
Strategies to address the needs of special populations *(n=396)*	7.1%	24.0%	27.5%	27.5%	13.4%	0.5%
Preparatory services for all participants *(n=387)*	7.8%	24.3%	26.9%	25.8%	14.0%	1.3%
Evaluation of Tech Prep programs *(n=396)*	13.6%	24.5%	28.5%	23.0%	9.8%	0.5%
Computer monitoring of student progress through Tech Prep programs *(n=393)*	39.4%	24.9%	16.0%	11.7%	3.8%	4.1%

Q-12. Take a few minutes to review your responses to the previous question (Q-11). Now, to summarize, indicate the stage of implementation that best describes your Tech Prep consortium overall. *(Circle the one best response.) (n=387)*

10.6%	Planning
23.5%	Development
51.9%	Initial Implementation
12.9%	Advanced Implementation
1.0%	Other

BEST COPY AVAILABLE

PART III: BARRIERS TO TECH PREP IMPLEMENTATION

Q-13. Barriers stand in the way of implementation of any new educational program. This question focuses on identifying barriers to implementation of Tech Prep. For each of the barriers listed below, indicate the level of impact it *has had or is having* on your consortium's Tech Prep initiative.

	Level of Impact *(Circle the one best response)*					
Barrier	None	Very Minor	Minor	Moderate	Major	Very Major
Negative attitude toward vocational education *(n=393)*	2.5%	9.2%	24.7%	40.2%	17.6%	5.9%
Lack of staff, time, and money dedicated to Tech Prep *(n=396)*	2.5%	7.3%	18.9%	34.8%	27.0%	9.3%
Failure of educators to see the need to change *(n=395)*	3.8%	13.4%	25.8%	32.2%	19.2%	5.6%
Turf battles between secondary and postsecondary educators *(n=396)*	9.8%	20.2%	33.3%	22.7%	9.8%	4.0%
Looking at Tech Prep as vocational education by another name *(n=393)*	4.1%	11.5%	24.9%	33.6%	19.8%	6.1%
Lack of general awareness about Tech Prep *(n=396)*	1.5%	6.6%	18.9%	38.1%	27.0%	7.8%
Belief that Tech Prep is an educational "fad" that will go away *(n=395)*	4.3%	10.6%	21.5%	33.2%	21.0%	9.4%
Failure of two-year postsecondary schools to accommodate Tech Prep students *(n=387)*	29.2%	31.3%	21.4%	12.7%	4.7%	0.8%
Failure of four-year colleges and universities to award college credit for applied academic or other Tech Prep courses *(n=378)*	10.3%	9.3%	12.2%	20.1%	25.9%	22.2%
Difficulty in dealing with educational bureaucracies *(n=391)*	4.3%	9.5%	23.3%	34.5%	17.6%	10.7%
Lack of support from business and industry *(n=392)*	24.2%	28.8%	29.6%	13.0%	3.3%	1.0%
Lack of support from labor organizations *(n=362)*	36.7%	23.8%	22.1%	9.1%	4.4%	3.9%
Lack of availability of integrated academic and vocational curriculum materials *(n=393)*	14.5%	25.7%	29.3%	20.9%	7.9%	1.8%
Conflict with other educational reform movements *(n=395)*	22.0%	26.3%	24.6%	17.0%	6.1%	4.1%
Resistance from secondary school administrators to Tech Prep *(n=394)*	15.7%	23.6%	26.9%	23.1%	8.4%	2.3%
Resistance from postsecondary school administrators to Tech Prep *(n=393)*	25.3%	25.3%	27.1%	14.8%	5.1%	2.3%
Difficulty reaching consensus among curriculum planners on reform strategies *(n=389)*	12.3%	27.2%	29.3%	20.6%	8.7%	1.8%
Lack of funds for curriculum reform *(n=395)*	9.6%	13.9%	20.5%	27.8%	18.7%	9.4%
Failure to employ local Tech Prep coordinator full-time *(n=391)*	42.2%	7.2%	12.3%	13.8%	13.3%	11.3%
Lack of experts to provide inservice about Tech Prep *(n=391)*	22.0%	21.5%	27.1%	18.7%	8.2%	2.6%
Resistance from academic educators to make changes for Tech Prep *(n=394)*	2.3%	14.5%	25.4%	31.7%	21.3%	4.8%

	Level of Impact *(Circle the one best response)*					
Barrier	None	Very Minor	Minor	Moderate	Major	Very Major
Resistance from vocational educators to make changes for Tech Prep *(n=390)*	9.7%	23.6%	34.6%	21.3%	9.0%	1.8%
Resistance from secondary schools to introduce Tech Prep into the curriculum *(n=392)*	9.7%	20.2%	27.6%	30.4%	9.9%	2.3%
Resistance from postsecondary schools to introduce Tech Prep into the curriculum *(n=390)*	15.4%	20.0%	26.7%	26.4%	8.2%	3.3%
Difficulty in developing formal articulation agreements between secondary and postsecondary schools *(n=392)*	22.2%	26.3%	21.7%	22.4%	5.6%	1.8%
Lack of collaboration between academic and vocational educators *(n=393)*	3.6%	15.8%	29.8%	33.6%	13.2%	4.1%
Lack of knowledge and skills among education personnel in how to implement educational change *(n=392)*	3.6%	10.5%	23.7%	37.2%	19.9%	5.1%
Little time for joint planning by academic and vocational or secondary and postsecondary faculty *(n=392)*	2.8%	6.4%	17.6%	28.8%	28.6%	15.8%
Lack of credibility of vocational educators involved with Tech Prep *(n=394)*	11.9%	29.9%	30.7%	21.1%	4.1%	2.3%
Lack of clear *local* level policy for Tech Prep *(n=393)*	13.2%	23.2%	22.6%	24.9%	9.7%	6.4%
Lack of clear *state* level policy for Tech Prep *(n=396)*	12.1%	21.2%	18.7%	22.5%	14.6%	10.9%
Lack of clear *federal* level policy for Tech Prep *(n=394)*	14.0%	21.1%	26.4%	20.3%	11.9%	6.3%
Lack of support from *both* state secondary and postsecondary agencies *(n=393)*	17.8%	23.7%	28.2%	17.8%	6.6%	5.9%
Turnover of local or state leaders involved in Tech Prep *(n=392)*	25.5%	28.1%	21.2%	12.8%	7.7%	4.8%
Too much flexibility in local implementation of Tech Prep *(n=391)*	30.4%	29.9%	24.3%	10.0%	4.3%	1.0%
Funding for Tech Prep limited to vocational education sources *(n=393)*	20.3%	15.2%	17.5%	22.8%	14.5%	9.6%
Limitations in using Tech Prep funds for equipment or instructional materials purchases *(n=391)*	11.5%	18.4%	21.0%	22.8%	17.4%	9.0%
Limitations in using Tech Prep funds beyond grades 11-14 *(n=398)*	24.4%	20.3%	18.5%	13.9%	14.7%	8.2%
Lack of evaluation mechanisms to inform implementation *(n=386)*	10.6%	17.9%	26.9%	27.5%	13.7%	3.4%
Lack of authority of local personnel to make changes needed to implement Tech Prep *(n=394)*	12.7%	19.8%	25.4%	22.3%	12.2%	7.6%
Pressure from special interest groups to modify Tech Prep *(n=392)*	42.9%	27.3%	17.6%	6.9%	3.1%	2.3%
Lack of active involvement from business and industry *(n=394)*	22.6%	26.4%	24.4%	16.8%	7.6%	2.3%
Lack of jobs in the region for Tech Prep graduates *(n=393)*	13.7%	17.3%	20.1%	25.2%	14.2%	9.4%
Lack of parental support for Tech Prep *(n=386)*	16.3%	20.7%	29.0%	23.1%	8.8%	2.1%

	Level of Impact *(Circle the one best response)*					
Barrier	None	Very Minor	Minor	Moderate	Major	Very Major
Lack of student interest in Tech Prep *(n=386)*	15.5%	23.8%	30.3%	22.5%	6.2%	1.6%
Inability of young people to make early career decisions *(n=387)*	8.0%	18.9%	21.2%	30.2%	17.3%	4.4%
Lack of counselor interest in or involvement with Tech Prep *(n=390)*	10.3%	16.4%	19.7%	27.9%	17.4%	8.2%
Lack of cooperation from teachers' unions *(n=367)*	47.4%	20.7%	17.7%	8.7%	4.4%	1.1%
Difficulty maintaining momentum over the long term *(n=390)*	16.4%	16.9%	27.9%	21.5%	13.1%	4.1%
Pressure for quick success and student head counts *(n=393)*	16.0%	12.2%	16.5%	25.7%	17.3%	12.2%
Other responses: Size of region & number of schools, consortium too big, widespread geography; lack of integrated concept between Tech Prep and youth apprenticeship, incompatibility with federally funded apprenticeship in region; lack of funding of grades 8, 9, & 10, local tight budget, crisis of school funding, funds for proper administration and marketing; applied academics rather than true integration, articulation defined as early completion, different approaches of secondary systems, resistance to DACUM, lack of developed competencies for occupational areas; lack of recent workforce experience among school personnel; lack of interest & support of upper-level administration; too much state involvement in day-to-day operations; staggering paperwork for Perkins; fiscal agent usurps autonomy; lack of cooperation from state professional organizations; identification that Tech Prep tracks students; lack of support from student services side of postsecondary *(n=30)*						

PART IV: TECH PREP CONSORTIUM CHARACTERISTICS

Q-14. *Estimate* the number of organizations that participated in Tech Prep implementation in your consortium during the 1992-1993 year. *(Enter 0 [zero] if no such organizations participated.)*

Type of Organization	**Number in Consortium *(mean)***
Secondary schools (e.g., comprehensive high schools, area or regional vocational schools, vocational high schools) *(n=364)* If readily available, *estimate* the combined student enrollment (head count) of *all* secondary schools participating in the consortium. *(n=241)*	11.60 7800.75
Two-year postsecondary schools (e.g., community and junior colleges, two-year vocational-technical institutes and proprietary schools) *(n=349)* If readily available, *estimate* the combined student enrollment (head count) of *all* postsecondary schools participating in the consortium. *(n=212)*	1.78 7,104.53
Four-year postsecondary schools (e.g., public and private four-year colleges and universities) *(n=152)*	1.64
Private-sector businesses and industrial firms (including private not-for-profit organizations) *(n=287)*	22.78
Labor organizations *(n=91)*	2.31
Public community-based organizations (including parent, teacher organizations) *(n=164)*	5.04
Student leadership organizations (secondary and postsecondary) *(n=83)*	4.36
Other *(specify) (n=22)*	2.50

Q-15. For each group of *secondary and postsecondary* personnel listed below, *estimate* (1) the total number employed by organizations in your consortium; (2) the percentage of each group of personnel *actively* involved in Tech Prep planning, development, and implementation activities; and (3) the percentage of each group that *has participated in Tech Prep inservice*.

***Secondary* Education Personnel**	**Total Number Employed**	**Percent (%) involved in Tech Prep**	**Percent (%) in Tech Prep Inservice**
Academic faculty	504.99 *(n=286)*	29.9 *(n=207)*	42.5 *(n=214)*
Vocational faculty	91.82 *(n=293)*	53.7 *(n=260)*	59.8 *(n=262)*
Counselors	31.64 *(n=294)*	61.4 *(n=243)*	67.4 *(n=236)*
Administrators	43.54 *(n=288)*	56.4 *(n=242)*	60.5 *(n=238)*
***Postsecondary* Education Personnel**	**Total Number Employed**	**Percent (%) involved in Tech Prep**	**Percent (%) in Tech Prep Inservice**
Academic faculty	92.97 *(n=254)*	31.2 *(n=158)*	44.7 *(n=160)*
Vocational faculty	53.77 *(n=256)*	47.5 *(n=216)*	54.5 *(n=206)*
Counselors	8.51 *(n=255)*	56.5 *(n=202)*	63.2 *(n=185)*
Administrators	18.38 *(n=266)*	53.7 *(n=230)*	59.2 *(n=206)*

Note: Due to the high incidence of nonresponse to this question, readers are urged to use caution in interpreting and reporting these statistics.

Q-16. Describe the most successful Tech Prep inservice activity your consortium has conducted thus far for secondary and postsecondary *and* academic and vocational education personnel. *(If additional space is needed, please use the back of this survey.)* Refer to the section of this report on local consortium characteristics for a discussion of these open-ended survey responses.

Q-17. *Estimate* the total number of people who live in your Tech Prep consortium service area.

288,114 *(mean)* TOTAL CONSORTIUM POPULATION

Q-18. In what type of setting(s) do people in your consortium service area reside? *(Circle all that apply.)*

39.4%	Rural only
24.2%	All settings
10.9%	Rural and Suburban
23.9%	All
9.2%	Suburban only
7.6%	Urban only
4.3%	Rural and Urban
4.3%	Urban and Suburban

Q-19. For the 1992-1993 academic year, indicate *source(s) and amount of grant funds* for Tech Prep (*NOT* counting carry forward funds from previous funding periods or in-kind contributions of goods and services). *(Enter 0 [zero] in categories where no such funds were received during 1992-1993.)*

Source of Funds	**Total of '92-'93 Funds (mean)**
Tech Prep grant funds (Perkins Title IIIE Tech Prep funds awarded by states) *(n=373)* Year Perkins IIIE Tech Prep funds were *first* received: 1991 *(n=264)*; 1992 *(n=127)*	97,342.87
State or federal grant funds *other* than Perkins Title IIIE Tech Prep funds *(n=101)*	62,220.58
Local funds *(n=145)*	45,572.33
Private-sector business and industry funds *(n=43)*	9,228.17
Other *(n=198)*	29,744.44
Total *(n=383)*	130,987.27

Q-20. Considering the total 1992-1993 Tech Prep funds reported in the previous question (Q-18), *estimate* the percentage that was allocated to the following activities:

Tech Prep Activity	**Percent (%) of '92-'93 Funds**
Program administration *(n=383)*	21.2%
Curriculum development *(n=383)*	15.0%
Staff development *(n=383)*	21.0%
Promotions and marketing *(n=383)*	6.1%
Equipment purchases *(n=383)*	15.4%
Curriculum and instructional materials purchases *(n=383)*	14.3%
Program evaluation and student (learner) assessment *(n=383)*	2.3%
Other *(n=382)*	2.9%

PART V: TECH PREP COORDINATOR BACKGROUND

Q-21. How many months have you been employed as a Tech Prep consortium coordinator? *(n=397)*

6.0%	1-6 months
20.4%	7-12 months
18.9%	13-18 months
22.2%	19-24 months
15.6%	25-30 months
2.5%	31-36 months
14.4%	More than 3 years

Q-22. How many years have you been employed in an educational setting? *(n=397)*

18.7%	1-10 years
25.5%	11-20 years
38.8%	21-30 years
17.2%	31 or more years

Q-23. Your position as Tech Prep coordinator is funded as a *(n=384)*

37.0%	Full-time position
38.0%	Part-time position
20.8%	Coordinator responsibilities not funded; Tech Prep is part of regular job
4.2%	Other

Q-24. Approximately how many hours per week do you spend on Tech Prep activities? *(n=386)*

27.89 *(mean)* HOURS PER WEEK

Q-25. In what type of organization is your immediate supervisor employed? *(Circle all that apply.)* *(n=397)*

52.9%	Two-year postsecondary college
32.7%	Secondary school
17.6%	Other
2.8%	Four-year postsecondary college
1.3%	Business and industry

Q-26. Which category best describes your previous professional work experience? *(Circle all that apply.)* *(n=397)*

53.1%	Educational administration
33.5%	Academic teaching
47.4%	Vocational teaching
28.5%	Business/industry employment
16.1%	University teaching/research
14.6%	Guidance/counseling
13.4%	Other

Q-27. What is the highest educational degree you have obtained? *(n=389)*

0.8%	Associate Degree
11.6%	Bachelor's Degree
64.8%	Master's Degree
20.6%	Doctoral Degree
2.3%	Other

Q-28. A goal of this survey is to provide ideas to improve state and federal policies regarding Tech Prep. To address this goal, we invite you to provide one or more recommendations for improving state and/or federal Tech Prep policy. Refer to section of this report on "Local Coordinator Recommendations for State and Federal Policy" for a discussion of these open-ended survey responses.

Q-29. Please provide the following information so that, if necessary, we may follow up with you about information reported in this survey:

Name: ______________________________

Work Address: ____

____

____

Phone Number: ________________________

Fax Number: ________________________

APPENDIX B
MODIFICATIONS TO THE TECH PREP IMPLEMENTATION SURVEY

Part I

To Part I of the survey on *Tech Prep Goals and Outcomes*, the following changes were made:

- Question 2 (Q-2) was changed from an open-ended item telling respondents to "briefly state one primary goal of your Tech Prep initiative" to a closed-ended item telling respondents to "rank order the following five reasons [for implementing Tech Prep] from 1 to 5 with 1 being the highest (top) reason and 5 the lowest (bottom) reason:
    - Articulate secondary and postsecondary education
    - Enhance workforce preparation
    - Give students multiple options beyond high school
    - Reach the neglected majority
    - Reform secondary school curriculum
- Questions 3 (Q-3) and 4 (Q-4) on use of site-based committees or teams were dropped from the 1995 survey.
- In 1995, a new question was added to the survey (Question 5 [Q-5]) asking respondents to indicate the formal definition for a Tech Prep student used by their consortia. Fourteen different statements were presented to respondents, along with an "Other" category.
- Questions 7 (Q-7) and 8 (Q-8) of the 1993 survey on educational reforms and student outcomes were dropped from the 1995 survey.
- A new Question 8 (Q-8) was created for the 1995 survey asking respondents how their consortium differentiates between Tech Prep and vocational education (to attempt to understand how the respondents were thinking about Tech Prep in relation to existing vocational education programs and practices).

Part II

In Part II of the survey, *Stage of Implementation of Tech Prep*, the following items were added to better capture various dimensions of the School-to-Work Opportunities Act (STWOA) initiatives that were evolving at the time:

- Applied academics courses such as Principles of Technology
- Formal governing/advisory board
- Individualized student training and/or career plans
- Performance standards and measures for Tech Prep
- Formal assessment and certification of skills based on industry standards
- Incorporation of "all aspects of the industry"

Part III

In Part III of the survey, *Barriers to Tech Prep Implementation*, 19 items were added to the list of barriers, reflecting the barriers named by respondents in the "Other" category of the 1993 survey as well as potential issues associated with implementation of Tech Prep/STWOA initiatives. These barriers[18] were as follows:

1. Tight budgets at the *state* level (11)
2. Tight budgets at the *local* level (59)
3. Large distances separating institutions in the consortium (46)
4. Too many schools in the consortium (50)
5. Lack of developed competencies for the academic areas (52)
6. Lack of developed competencies for the vocational-technical areas (62)
7. Increased paperwork to support Tech Prep (54)

---

[18] The number in parentheses following each item represents its numeric order in the list of barriers appearing in the survey.

8. Conflict between Tech Prep and STW (56)
9. Limits on using Tech Prep funds below grade 11 (57)
10. Focus on applied academics rather than other academic and vocational integration models (58)
11. Too much state involvement in day-to-day operations (60)
12. Use of advanced placement and other articulation models that allow students to complete college early (61)
13. Lack of recent workforce experience among school personnel (63)
14. Lack of interest and support from upper-level administration (64)
15. Lack of cooperation from state professional organizations (65)
16. Lack of a clear definition of the Tech Prep student (66)
17. The stigma of "tracking" is associated with Tech Prep (67)
18. Lack of certificates of mastery (68)
19. Lack of cooperation among institutional partners (69)

Part IV

In Part IV, *Tech Prep Consortium Characteristics*, we asked in Question 11 (Q-11) for respondents to tell us not only how many organizations were involved in their local Tech Prep consortium, but how many were *actively* participating. We added two questions that asked the academic year in which Tech Prep was first implemented in the area (Question 14 [Q-14]) and the academic year in which federal Tech Prep funding was first awarded to the consortium (Question 15 [Q-15]). In this section, we dropped two questions from the 1993 survey about Tech Prep inservice activities and involvement by secondary and postsecondary personnel.

Part V

In the last section of the survey, Part V, *Tech Prep Coordinator Characteristics*, the questions remained the same, except that Question 22 (Q-22), which asked respondents how many years they had been employed in an educational setting, was dropped from the 1995 survey instrument.

APPENDIX C
AGGREGATED RESPONSES TO 1995 TECH PREP IMPLEMENTATION SURVEY

About the Study

We at the University of Illinois site of the National Center for Research in Vocational Education (NCRVE) conduct research to better understand how Tech Prep is progressing and to identify barriers that need to be overcome in future implementation efforts. This study follows up on a survey completed by local Tech Prep coordinators in 1993. As such, it will show changes that have occurred in Tech Prep between 1993 and 1995 as well as identify the status of Tech Prep nationwide.

Filling Out the Questionnaire

In 1993, your Tech Prep consortium was randomly selected from all local consortia throughout the nation to be part of a survey regarding Tech Prep implementation. Now we need your assistance in completing the 1995 follow-up questionnaire or in getting it to the person in your consortium who is most knowledgeable about current Tech Prep implementation efforts. Usually this person is the local Tech Prep coordinator (or director), but not always. If you have questions about who should complete the questionnaire or if you have any other questions, contact me by phone, fax, or e-mail at the numbers shown at the bottom of the page.

The Questionnaire

There are five parts to the questionnaire and it is essential that you provide responses to the questions in all the parts. The five parts are . . .

Part One:	Tech Prep Goals & Outcomes
Part Two:	The Stage of Implementation of Tech Prep
Part Three:	Barriers to Tech Prep Implementation
Part Four:	Tech Prep Consortium Characteristics
Part Five:	Tech Prep Coordinator Background

Most questions require you to circle responses, but a few require you to print a short answer. *Typing is not necessary*. Please be assured that your answers will be completely confidential. An identification number appears in the form for mailing purposes only. Your responses will only be reported in aggregate form.

Returning the Questionnaire

Once you have completed the questionnaire, please mail it to us within the next three weeks. A postage-paid envelope is enclosed for your convenience. If you use a different envelope, send your survey to the attention of

Dr. Debra Bragg
NCRVE Site, University of Illinois
344 Education Building
1310 S. Sixth Street
Champaign, IL 61820

Part One: Tech Prep Reform Goals

This section of the questionnaire focuses on the particular goals and elements of your local Tech Prep initiative during the 1994-1995 academic year, which spans approximately August 1994 to June 1995.

1. Which of the following elements of Tech Prep is formally stated *in writing* in a mission statement, proposal, policy, plan, marketing brochure, or other official document as a focus of your consortium's Tech Prep initiative? *(Circle yes or no on each line.)*

	Stated *in writing* as a focus of Tech Prep?	
Tech Prep Element	**Yes**	**No**
a. Common core curriculum in math, science, and communications (including applied academics) and technologies leading to an associate degree, certificate, or apprenticeship in a career field *(n=337)*	91.4	8.6
b. New teaching methods such as cooperative learning appropriate for varied student needs and learning styles *(n=332)*	72.3	27.7
c. Integrated academic and vocational curriculum *(n=336)*	92.6	7.4
d. Alternative learner assessment (e.g., performance assessment, portfolios) *(n=331)*	60.4	39.6
e. Career guidance including career awareness and exploration *(n=337)*	94.7	5.3
f. Formal articulation agreements to create 2+2 program-area course sequences between secondary and postsecondary schools *(n=336)*	97.6	2.4
g. Work-based learning experiences (e.g., youth apprenticeships, cooperative education, school or career academies) *(n=334)*	77.5	22.5
h. Employment assistance and job placement services *(n=331)*	46.2	53.8
i. Equal access to the full range of Tech Prep for special populations *(n=337)*	87.8	12.2
j. Preparatory services for all participants in Tech Prep *(n=331)*	73.4	26.6
k. Joint inservice training for teachers from the entire consortium *(n=336)*	81.3	18.8
l. Training programs for counselors designed to enable them to recruit students and ensure they complete programs and obtain employment *(n=334)*	73.1	26.9
m. Collaboration between educators and employers to enhance education *(n=337)*	89.6	10.4
n. Marketing of Tech Prep programs *(n=335)*	88.7	11.3
o. Local program evaluation of Tech Prep *(n=335)*	77.6	22.4

2. There are many reasons to implement Tech Prep. Considering your local consortium's reasons for implementing Tech Prep, rank order the following five reasons from 1 to 5 with 1 being the highest (top) reason and 5 the lowest (bottom) reason. (Percentage represents the number of respondents who ranked each item as 1.) *(n=321)*

17.8% **Articulate secondary and postsecondary education**
Increase student matriculation into postsecondary education by formally articulating secondary and postsecondary education.

29.6% **Enhance workforce preparation**
Prepare individuals for an increasingly competitive and technological workplace with education that combines academics, technologies, and career preparation.

19.0% **Give students multiple options beyond high school**
Provide educational preparation that leads to multiple options beyond high school, including employment, two-year college, four-year college, or military service.

20.0% **Reach the neglected majority**
Create educational opportunities to ensure the neglected majority receives better career and academic preparation by eliminating the general track.

11.5% **Reform the secondary school curriculum**
Institute systemic reform to change teaching and learning processes and institutionalize Tech Prep at the secondary level.

3. During the 1994-1995 academic year, which vocational education program areas were part of your Tech Prep curriculum reform efforts? *(Circle all that apply.)*

	Vocational Program Areas	**YES**	**NO**
1	Agriculture *(n=338)*	39.6	60.4
2	Business and Office *(n=338)*	89.1	10.9
3	Health Occupations *(n=338)*	66.6	33.4
4	Marketing/Distributive Education *(n=338)*	39.3	60.7
5	Occupational Home Economics *(n=338)*	26.3	73.7
6	Consumer and Homemaking *(n=338)*	21.9	78.1
7	Trade and Industrial *(n=338)*	67.8	32.2
8	Industrial Technology Education *(n=338)*	69.2	30.8
9	Other *(specify)*: *(n=332)*	12.7	87.3

4. Which of the following class rank percentiles best describes the *primary* target group(s) of students for your Tech Prep initiative? *(Circle all that apply.) (n=336)*

38.7%	25-75th
19.3%	50-75th
15.8%	0-100th
7.7%	25-50th
7.1%	25-100th
0.9%	Other
0.3%	0-25th

5. Some consortia create a formal definition and identify the Tech Prep student. Others do not. Read the following list of statements about how some local consortia define and identify Tech Prep students. Then, indicate whether each statement applies to how Tech Prep students are defined and identified by your own local consortium. *(Circle yes or no on each line. Also, be sure to list other Tech Prep definitions at the bottom of the grid.)*

Defining and Identifying the Tech Prep Student	**Yes**	**No**
a. A formal written definition exists for a Tech Prep student in your local consortium *(n=336)*	58.6	41.4
b. A formal written admission process is used to admit Tech Prep students *(n=335)*	34.3	65.7
c. Any student who chooses to participate in Tech Prep can do so *(n=331)*	92.7	7.3
d. A Tech Prep student is someone who chooses a program of study designated as Tech Prep *(n=333)*	80.2	19.8
e. At entry into Tech Prep, a student must meet a specific grade point average *(n=328)*	10.4	89.6
f. A Tech Prep student is someone who has an individualized plan showing Tech Prep is his or her designated program of study *(n=331)*	66.8	33.2
g. A Tech Prep student is someone who is academically capable but unmotivated by the traditional academic curriculum *(n=325)*	49.5	50.5
h. A Tech Prep student must create a formal plan to complete a sequence of courses in a core curriculum of math, science, communications, and workplace skills that logically leads to an associate degree *(n=335)*	63.3	36.7
i. All students are considered Tech Prep students *(n=332)*	21.1	78.9
j. A Tech Prep student must maintain academic progress on grade level in the core curriculum *(n=328)*	47.3	52.7
k. A Tech Prep student is someone who is required to enroll in vocational-technical courses that are formally articulated to the postsecondary level *(n=335)*	56.1	43.9
l. A Tech Prep student is someone who is required to take applied academics courses such as applied math, Principles of Technology, or applied communications *(n=330)*	47.6	52.4
m. A Tech Prep student is someone who is identified as being at risk of dropping out or of school failure *(n=326)*	12.0	88.0
n. A Tech Prep student is someone who actually participates in a work-based learning experience such as co-op or apprenticeship *(n=330)*	30.7	69.3

6. During the 1994-1995 academic year, which of the following represents the focus of Tech Prep curriculum reform efforts that occurred in your consortium at the *secondary* and *postsecondary* levels? *(Circle the one best response on each line for the secondary and postsecondary levels. Also, be sure to list other curriculum reform efforts in the blanks provided at the bottom of the grid.)*

	At the *secondary* level during '94-'95?		**At the *postsecondary* level during '94-'95?**	
Curriculum Reform Effort	Yes	No	Yes	No
a. Supplement existing vocational-technical courses with academic content *(n=326/297)*	81.3	18.7	53.2	46.8
b. Supplement existing academic courses with vocational-technical content *(n=327/296)*	80.4	19.6	49.0	51.0
c. Add applied academic courses (commercially or locally developed) to the existing curriculum *(n=329/293)*	88.8	11.2	41.3	58.7
d. Replace parts of the existing curriculum with applied academic courses (commercially or locally developed) *(n=332/292)*	80.4	19.6	40.1	59.9
e. Coordinate academic and vocational-technical courses by sequencing and reinforcing related content, often through block scheduling *(n=330/290)*	71.8	28.2	32.1	67.9
f. Provide interdisciplinary courses combining vocational-technical and academic content (e.g., History of Work) *(n=327/290)*	48.3	51.7	29.0	71.0
g. Organize academic and vocational-technical courses around occupational/career clusters *(n=330/285)*	80.3	19.7	58.6	41.4
h. Provide academies combining courses from vocational-technical areas and math, science, communications, and other academic areas *(n=326/291)*	40.2	59.8	20.3	79.7
i. Articulate academic program-area course sequences between the secondary and postsecondary levels *(n=330/303)*	75.2	24.8	77.2	22.8
j. Articulate vocational-technical program-area course sequences between the secondary and postsecondary levels *(n=330/304)*	94.2	5.8	93.8	6.3
k. Add advanced-skills courses to the existing curriculum *(n=327/297)*	52.0	48.0	53.2	46.8
l. Provide work-based learning outside the formal structure of school or college as a significant portion of student learning (e.g., internship, apprenticeship) *(n=332/301)*	66.6	33.4	64.1	35.9

7. What level of support does your Tech Prep initiative currently receive from the following groups? *(Circle one response on each line. Circle 9 only if the group is Not Applicable [NA] or the level of support is unknown.)*

	Level of Support				
Group	Poor	Fair	Good	Excellent	NA
a. Academic faculty *(n=338)*	3.8	35.2	49.1	11.2	0.6
b. Vocational faculty *(n=337)*	0.9	6.5	40.1	52.2	0.3
c. Counselors *(n=336)*	5.1	30.1	45.2	18.8	0.9
d. Local secondary administrators *(n=338)*	3.0	17.2	50.0	29.3	0.6
e. Local two-year postsecondary administrators *(n=336)*	2.7	14.0	39.6	42.9	0.9
f. Secondary faculty *(n=337)*	1.2	18.7	63.5	16.3	0.3
g. Postsecondary faculty *(n=336)*	5.4	32.7	44.9	16.4	0.6
h. Business/industry representatives *(n=335)*	2.7	13.7	44.8	37.3	1.5
i. Labor union representatives *(n=333)*	9.0	15.6	16.2	12.6	45.9
j. State agency personnel *(n=337)*	3.9	10.7	32.6	49.9	3.0
k. Four-year college/university personnel *(n=336)*	20.8	29.8	18.2	8.3	22.6
l. Secondary school board members *(n=337)*	5.6	22.3	38.9	20.8	12.5
m. College trustees *(n=335)*	12.2	15.2	26.0	12.5	33.1
n. Students *(n=337)*	1.2	16.9	55.5	22.8	3.6
o. Parents *(n=337)*	4.7	29.7	44.2	15.4	5.9

8. How does your consortium differentiate between Tech Prep and vocational education? *(Provide a brief written response and/or examples in the space below.)* Results from a content analysis of the responses is presented in the "Goals, Elements, and Curriculum Reform" section of the text.

Part Two: Stage of Implementation of Tech Prep

This section of the survey focuses on the stage of implementation of components of your Tech Prep initiative as of the conclusion of the 1994-1995 academic year. For each component, indicate the stage of implementation that is *typical* for the institutional partners in your local consortium.

The following are the stages of implementation:

1 *Not Begun:* This stage indicates the component has not been addressed.

2 *Planning:* This stage includes goal setting, staff orientation, the formation of committees and teams, and the development of plans.

3 *Development:* This stage involves such activities as reviewing, designing, creating, and field testing.

4 *Initial Implementation:* This stage occurs when plans and products of the developmental stage begin to be carried out.

5 *Advanced Implementation:* This stage occurs when a component is routinely carried out, regularly reviewed and evaluated, and institutionalized so that it continues even if current leaders are no longer responsible for Tech Prep.

9 *Not Addressed (NA):* This category indicates that your consortium does not intend to include the component in its Tech Prep initiative.

9. For each of the following Tech Prep components indicate the *current* stage of implementation. *(Circle the one best response on each line. Circle 9 only if the component is not applicable (NA) or unknown.)*

Tech Prep Component	**Stage of Implementation**					
	Not Begun	Plan	Develop	Initial Implmt	Adv. Implmt	NA
1. Consortium building (including recruiting schools, colleges, employers, and other organizations) *(n=338)*	1.5	1.8	4.7	25.7	65.4	0.9
2. Site-based planning and decisionmaking for Tech Prep *(n=337)*	2.1	3.3	12.5	34.4	46.3	1.5
3. Team building to facilitate Tech Prep planning and implementation *(n=337)*	1.8	1.8	11.3	40.7	44.2	0.3
4. Long-range and/or strategic planning for Tech Prep *(n=339)*	2.1	7.7	20.4	29.8	39.8	0.3
5. Formal partnerships with business and industry *(n=338)*	3.6	8.3	21.9	34.3	31.7	0.3
6. Joint inservice of secondary and postsecondary personnel (e.g., faculty, counselors, administrators) *(n=339)*	4.7	5.9	10.0	33.3	45.4	0.6

	Stage of Implementation					
Tech Prep Component	Not Begun	Plan	Develop	Initial Implmt	Adv. Implmt	NA
7. Inservice training of counselors in recruitment, placement, and retention of students for Tech Prep *(n=338)*	3.8	5.6	17.5	40.8	31.7	0.6
8. Workplace professional development experiences for teachers and counselors *(n=338)*	7.7	14.2	20.7	32.5	23.1	1.8
9. Joint planning time for academic and vocational teachers *(n=339)*	14.5	14.2	27.4	26.0	14.2	3.8
10. Formal signed articulation agreement(s) between secondary and postsecondary schools *(n=339)*	0.0	1.8	7.4	18.6	71.7	0.6
11. Integration of academic and vocational *secondary* curriculum *(n=339)*	2.1	8.3	16.8	41.3	30.7	0.9
12. Labor market analysis to inform curriculum development *(n=337)*	11.3	11.6	21.1	28.2	26.1	1.8
13. Development of 2+2 core academic and technical curriculum *(n=337)*	1.2	5.9	16.6	34.1	40.9	1.2
14. Development of advanced-skills technical curriculum *(n=336)*	13.1	14.0	23.5	27.7	19.9	1.8
15. Use of outcomes-based education for Tech Prep *(n=333)*	13.8	11.1	19.8	28.8	18.0	8.4
16. Integration of academic and vocational *postsecondary* curriculum *(n=338)*	17.5	13.0	25.1	24.9	14.8	4.7
17. Use of new instructional strategies (including cooperative learning approaches) *(n=338)*	2.7	8.3	21.0	42.0	24.6	1.5
18. Alternative assessments (e.g., portfolios, performance assessment) *(n=338)*	6.8	18.0	22.8	35.2	14.5	2.7
19. Collaboration between academic and vocational educators *(n=338)*	1.8	8.3	20.4	46.2	22.8	0.6
20. Career awareness and exploration for students in Tech Prep *(n=338)*	0.3	6.2	20.1	42.9	29.6	0.9
21. Work-based learning for students (e.g., internships, apprenticeships) *(n=339)*	5.6	18.3	24.5	35.7	15.0	0.9
22. Apprenticeships spanning secondary and postsecondary education *(n=337)*	27.3	18.1	16.9	22.6	8.0	7.1
23. Applied academics courses such as Principles of Technology *(n=339)*	2.7	2.9	8.6	33.0	51.3	1.5
24. Formal governing/advisory board *(n=338)*	4.1	3.8	7.4	21.0	62.1	1.5
25. Individualized student training and/or career plans *(n=337)*	4.2	10.1	22.3	34.4	27.3	1.8
26. Guidance and counseling services *(n=333)*	0.9	7.2	19.5	37.2	34.2	0.6
27. Equal access for all students *(n=337)*	0.6	5.6	7.4	32.3	53.7	0.3
28. Performance standards and measures for Tech Prep *(n=337)*	7.1	16.6	30.3	24.0	20.2	1.8
29. Strategies to address the needs of special populations *(n=337)*	4.7	13.4	24.9	30.3	26.1	0.6
30. Preparatory services for all participants *(n=334)*	5.1	13.8	21.0	28.4	27.5	4.2
31. Evaluation of Tech Prep programs *(n=338)*	4.7	13.3	28.1	28.1	25.4	0.3

Tech Prep Component	Stage of Implementation Not Begun	Plan	Develop	Initial Implmt	Adv. Implmt	NA
32. Marketing and promotions *(n=335)*	1.2	7.8	22.1	35.8	33.1	0.0
33. Formal assessment and certification of skills based on industry standards *(n=337)*	19.3	21.7	22.6	22.3	12.2	2.1
34. Incorporation of all aspects of the industry *(n=334)*	17.4	22.5	22.5	22.2	9.3	6.3
35. Computer monitoring (tracking) of student progress through Tech Prep programs *(n=337)*	27.0	22.6	24.3	14.8	8.3	3.0

BEST COPY AVAILABLE

Part Three: Barriers to Tech Prep Implementation

10. Barriers are inevitable when implementing any educational innovation. For each of the barriers listed below, indicate the level of impact it has on your consortium's Tech Prep initiative. *(Circle the one best response on each line.)*

	Level of Impact					
Barrier	None	Very Minor	Minor	Mod.	Very Major	Major
1. Negative attitude toward vocational education *(n=337)*	2.1	5.3	20.8	40.1	26.1	5.6
2. Lack of staff, time, and money dedicated to Tech Prep *(n=336)*	1.2	5.4	16.4	36.3	28.6	12.2
3. Failure of educators to see the need to change *(n=337)*	1.5	8.0	20.2	39.8	24.0	6.5
4. Turf battles between secondary and postsecondary educators *(n=336)*	9.5	19.0	25.3	28.0	13.1	5.1
5. Looking at Tech Prep as vocational education by another name *(n=334)*	4.2	8.7	18.9	36.8	24.3	7.2
6. Lack of general awareness about Tech Prep *(n=338)*	1.5	6.5	22.8	39.6	24.0	5.6
7. Belief that Tech Prep is an educational fad that will go away *(n=338)*	1.8	8.0	22.5	29.3	28.7	9.8
8. Failure of two-year postsecondary schools to accommodate Tech Prep students *(n=337)*	22.6	28.5	26.1	16.6	4.2	2.1
9. Failure of four-year colleges and universities to award credit for applied academic or other Tech Prep courses *(n=333)*	8.1	9.3	12.9	18.0	28.8	22.8
10. Difficulty in dealing with educational bureaucracies *(n=337)*	1.2	10.1	23.7	30.6	22.6	11.9
11. Tight budgets at the *state* level *(n=337)*	1.5	5.9	25.2	24.3	28.5	14.5
12. Lack of support from business and industry *(n=337)*	12.2	31.2	27.3	21.7	5.9	1.8
13. Resistance from academic educators to make changes for Tech Prep *(n=338)*	1.2	7.7	17.5	41.7	26.0	5.9
14. Lack of support from labor organizations *(n=312)*	35.3	22.1	21.5	9.6	7.4	4.2
15. Lack of availability of integrated academic and vocational curriculum materials *(n=337)*	13.6	29.1	27.3	22.8	5.3	1.8
16. Conflict with other educational reform movements *(n=336)*	15.8	25.9	22.6	19.9	10.1	5.7
17. Resistance from secondary school administrators *(n=337)*	10.4	21.4	32.0	27.0	5.9	3.3
18. Difficulty reaching consensus among curriculum planners on reform strategies *(n=336)*	8.6	23.8	34.5	25.0	6.5	1.5
19. Lack of funds for curriculum reform *(n=337)*	2.7	11.0	23.1	28.8	23.1	11.3
20. Failure to employ local Tech Prep coordinator full-time *(n=333)*	37.2	11.7	9.9	16.5	13.8	10.8
21. Lack of experts to provide inservice about Tech Prep *(n=336)*	25.0	26.8	25.0	16.7	4.2	2.4

	Level of Impact					
Barrier	None	Very Minor	Minor	Mod.	Very Major	Major
22. Resistance from vocational educators to make changes for Tech Prep *(n=337)*	13.4	30.0	27.3	21.1	7.1	1.2
23. Resistance from postsecondary school administrators *(n=337)*	18.4	29.4	27.6	16.3	6.8	1.5
24. Resistance from secondary schools to introduce Tech Prep into the curriculum *(n=336)*	9.5	18.2	33.9	26.5	10.7	1.2
25. Lack of clear *federal* policy for Tech Prep *(n=336)*	9.2	18.5	25.9	21.4	16.7	8.3
26. Difficulty in developing formal articulation agreements between secondary and postsecondary schools *(n=339)*	23.0	26.0	22.1	18.0	8.0	2.9
27. Lack of collaboration between vocational and academic educators *(n=339)*	2.9	14.7	27.1	34.8	16.5	3.8
28. Lack of knowledge and skills among education personnel in how to implement educational change *(n=338)*	2.7	10.9	23.4	38.2	17.5	7.4
29. Little time designated for joint planning by academic and vocational or secondary and postsecondary faculty *(n=337)*	0.6	4.7	11.9	27.0	37.7	18.1
30. Resistance from postsecondary schools to introduce Tech Prep into the curriculum *(n=335)*	9.0	18.8	27.8	23.3	15.5	5.7
31. Lack of credibility of vocational educators involved with Tech Prep *(n=337)*	11.3	33.8	29.1	18.1	5.9	1.8
32. Lack of clear *state* policy for Tech Prep *(n=336)*	15.2	21.1	22.0	14.3	15.8	11.6
33. Pressure from special interest groups to modify the Tech Prep effort *(n=337)*	38.0	29.7	18.1	8.3	3.6	2.4
34. Lack of support from *both* state secondary and postsecondary agencies *(n=338)*	19.8	31.4	24.6	13.3	6.8	4.1
35. Turnover of local or state leaders involved in Tech Prep *(n=338)*	17.8	23.4	22.2	18.3	13.0	5.3
36. Too much flexibility in local implementation of Tech Prep *(n=338)*	31.4	27.5	20.4	13.9	4.4	2.4
37. Funding for Tech Prep is limited to vocational education sources *(n=338)*	17.2	17.8	17.8	20.7	16.9	9.8
38. Limits on using Tech Prep funds for equipment or instructional materials purchases *(n=337)*	9.8	21.4	25.2	19.3	16.0	8.3
39. Limitations in using Tech Prep funds beyond grades 11-14 *(n=336)*	24.7	25.3	17.9	14.6	10.7	6.8
40. Lack of evaluation mechanisms to inform implementation *(n=334)*	9.0	19.8	25.4	25.1	17.4	3.3
41. Lack of authority of local personnel to make changes needed to implement Tech Prep *(n=339)*	8.8	23.9	23.0	18.9	18.3	7.1
42. Lack of clear *local* policy for Tech Prep *(n=339)*	18.0	22.1	22.4	21.2	11.5	4.7
43. Lack of active involvement from business and industry *(n=339)*	17.7	23.6	22.4	25.7	7.4	3.2
44. Lack of jobs in the region for Tech Prep graduates *(n=336)*	15.8	21.1	26.2	17.3	10.1	9.5

Barrier	Level of Impact None	Very Minor	Minor	Mod.	Very Major	Major
45. Lack of parental support for Tech Prep *(n=339)*	9.7	16.2	28.9	27.1	14.2	3.8
46. Large distances separating institutions in the consortium *(n=339)*	22.7	22.7	15.6	17.4	12.4	9.1
47. Lack of student interest in Tech Prep *(n=337)*	4.2	17.8	36.2	32.0	9.5	0.3
48. Lack of cooperation from teachers' unions *(n=325)*	44.6	15.1	24.6	10.5	2.8	2.5
49. Difficulty maintaining momentum over the long term *(n=337)*	5.9	15.7	24.0	33.8	16.6	3.9
50. Too many schools in the consortium *(n=338)*	34.0	28.1	18.3	10.7	6.2	2.7
51. Inability of young people to make early career decisions *(n=338)*	3.8	13.0	23.1	28.4	22.5	9.2
52. Lack of developed competencies for the academic areas *(n=336)*	8.3	16.1	27.1	29.2	15.5	3.9
53. Lack of counselor interest in or involvement with Tech Prep *(n=339)*	4.7	14.7	21.2	28.9	20.6	9.7
54. Increased paperwork to support Tech Prep *(n=339)*	5.6	15.6	25.4	28.0	16.8	8.6
55. Pressure for quick success and student head counts *(n=338)*	5.9	9.5	16.9	26.0	24.0	17.8
56. Conflict between Tech Prep and School-to-Work *(n=335)*	24.5	20.6	16.4	15.2	12.8	10.4
57. Limits on using Tech Prep funds below grade 11 *(n=338)*	16.9	18.3	18.0	16.9	17.5	12.4
58. Focus on applied academics rather than other academic and vocational integration models *(n=337)*	12.8	24.3	27.9	22.0	8.3	4.7
59. Tight budgets at the *local* level *(n=338)*	3.6	7.1	12.7	20.7	31.1	24.9
60. Too much state involvement in day-to-day operations *(n=337)*	33.2	33.8	22.0	6.5	3.9	0.6
61. Use of advanced placement and other articulation models that allow students to complete college early *(n=336)*	30.4	35.4	18.2	10.7	3.9	1.5
62. Lack of developed competencies for the vocational-technical areas *(n=339)*	22.4	28.0	25.1	14.2	8.8	1.5
63. Lack of recent workforce experience among school personnel *(n=338)*	3.3	8.9	19.8	26.3	30.2	11.5
64. Lack of interest and support from upper-level administration *(n=339)*	12.4	21.5	24.8	23.6	12.7	5.0
65. Lack of cooperation from state professional organizations *(n=338)*	29.5	28.0	25.0	9.8	5.7	2.1
66. Lack of a clear definition of the Tech Prep student *(n=338)*	15.7	21.9	20.1	20.1	13.3	8.9
67. The stigma of tracking is associated with Tech Prep *(n=339)*	8.6	18.6	20.6	22.7	19.2	10.3

Part Four: Tech Prep Consortium Characteristics

11. In Column 1, various types of organizations that could be associated with Tech Prep are listed. For each type of organization, estimate in Column 2 the total number that were involved in any way in your local Tech Prep consortium during the 1994-1995 academic year. In Column 3, estimate the number that were *actively* participating, meaning they had students enrolled, actively involved in, and benefiting from a Tech Prep core curriculum during the 1994-1995 academic year. *(Enter 0 [zero] in spaces where no such organizations participated.)*

Column 1 **Type of Organization**	**Column 2** **Total Number in Consortium**	**Column 3** **Number *Actively* Participating in Tech Prep**
a. Secondary schools (e.g., comprehensive high schools, area or regional vocational schools, vocational high schools) *(n=325/318)*	14.28	11.22
b. Two-year postsecondary schools (e.g., community and junior colleges, two-year vocational-technical institutes, and proprietary schools) *(n=330/327)*	1.79	1.81
c. Four-year postsecondary schools (e.g., public and private four-year colleges and universities) *(n=323/314)*	1.98	1.62
d. Private-sector businesses and industrial firms (including private not-for profit organizations) *(n=296/291)*	26.91	17.66
e. Labor organizations *(n=291/300)*	2.52	1.66
f. Public community-based organizations (including parent, teacher organizations) *(n=279/294)*	5.75	4.02
g. Student leadership organizations (secondary and postsecondary) *(n=279/287)*	6.36	3.72

12. Estimate the *total* number of people who live in your Tech Prep consortium service area. *(n=294)*

260,419 *(mean)* TOTAL POPULATION

13. In what type of setting do most people in your consortium service area reside? *(Circle the one best response.)*

40%	Rural or small town only
9%	Suburban only
8%	Urban only
4%	Rural/Urban
4%	Urban/Suburban
11%	Rural/Suburban
24%	Rural/Suburban/Urban

14. In what academic year (e.g., 1994-1995) was Tech Prep first implemented in your area? *(n=318)*

ACADEMIC YEAR TECH PREP BEGAN

<1%	Prior to 1990
12%	1990-1991
34%	1991-1992
33%	1992-1993
11%	1993-1994
7%	1994-1995

15. In what academic year (e.g., 1994-1995) were federal Tech Prep grant funds from the Tech Prep Education Act first awarded to your consortium? *(n=325)*

ACADEMIC YEAR TECH PREP FUNDS STARTED

<1%	Prior to 1990
2%	1990-1991
40%	1991-1992
42%	1992-1993
14%	1993-1994
1%	1994-1995

16. For the 1994-1995 academic year, estimate *source(s) and amount of grant funds* for Tech Prep (*NOT* counting carry forward funds from previous funding periods or in-kind contributions of goods and services). *(Please do not leave lines blank. Enter 0 [zero] in categories where no such funds were received during 1994-1995.)*

Source of Funds	**Total of '94-'95 Funds (mean)**
a. Federal Tech Prep grant funds (Perkins Title IIIE Tech Prep Education Act funds) (*n=289*)	$117,274
b. Federal funds *other* than Perkins Tech Prep funds (e.g., other Perkins funds, NSF grant funds, U.S. Department of Labor funds) (*n=78*)	84,255
c. State funds (*n=73*)	76,181
d. Local funds (*n=88*)	67,955
e. Private-sector business and industry funds (*n=39*)	22,534
f. Private foundations (*n=10*)	27,650
g. Other (*specify*) (*n=88*)	73,697
Total (*n=309*)	$180,090

17. Considering the total 1994-1995 Tech Prep funds reported in the previous question, estimate the *percentage* (not amount) that was allocated to the following activities. *(Enter 0 [zero] in categories where no such funds were allocated during 1994-1995.)*

Tech Prep Activity	**Percent (%) of '94-'95 Funds**
a. Program administration *(n=307)*	22.06
b. Curriculum development *(302)*	16.83
c. Staff development *(n=310)*	20.99
d. Promotions and marketing *(n=299)*	6.11
e. Equipment purchases *(n=297)*	13.14
f. Curriculum and instructional materials purchases *(n=301)*	15.01
g. Program evaluation and student (learner) assessment *(n=276)*	3.57
h. Other *(specify)*: *(n=152)*	6.06
Total	100%

BEST COPY AVAILABLE

Part Five: Tech Prep Coordinator Characteristics

18. How many months have you been employed as a Tech Prep consortium coordinator? *(n=319)*

6.7%	1-6
1.0%	7-12
7.5%	13-18
6.2%	19-24
7.4%	25-30
17.6%	31-36
44.1%	More than 3 years

19. How is your Tech Prep coordinator position funded? *(n=322)*

35.4%	It is a full-time position (40+ hours per week) funded with Tech Prep grant funds.
24.5%	It is a part-time position (less than 40 hours per week) funded with Tech Prep grant funds.
32.0%	It is *not* funded with Tech Prep grant funds but considered part of my regular position.
8.1%	Other

20. Approximately how many hours per week do you spend on Tech Prep activities? *(n=319)*

HOURS PER WEEK

42.0%	1-20
36.6%	21-40
21.2%	40 or more

21. In what type of organization is your immediate supervisor employed? *(Circle all that apply.) (n=329)*

54.7	Two-year postsecondary college
21.3	Local school district
14.6	Secondary school
9.8	Other
4.9	State or regional office of education
4.0	Four-year postsecondary college
1.5	Business and industry

22. Which category best describes your previous professional work experience? *(Circle all that apply.) (n=329)*

32.5	Academic teaching
39.8	Vocational teaching
10.9	Guidance/counseling
56.2	Educational administration
13.1	University teaching/research
31.3	Business/industry employment
8.5	Other

23. What is the highest educational degree you have obtained? *(Circle one.) (n=327)*

0.9	Associate Degree
14.1	Bachelor's Degree
32.7	Master's Degree
33.9	Advanced Certificate or Master's plus additional graduate study
16.2	Doctoral Degree
2.1	Other

A goal of this survey is to provide ideas to improve state and federal policies regarding Tech Prep. To address this goal, we invite you to provide recommendations for improving Tech Prep policy.

Please provide the following information so that, if necessary, we may follow up with you about information reported in this survey.

Name: ____________________

Work Address: ____________________

Phone Number: ____________________

Fax Number: ____________________

E-mail: ____________________

Please indicate the amount of time required to complete this survey: ____________

Thank You! ID Number: ____________

APPENDIX D
SITE PROFILES

Consortium: **The East Central Illinois Education-to-Careers Partnership**

Director:
Debra Mills
Danville Area Community College
2000 E. Main Street
Danville, IL 61832
(217) 443-8582
Fax: (217) 443-8560

Profile:

The East Central Illinois Education-to-Careers Partnership is headquartered at the Danville Area Community College (DACC) in Danville, Illinois. The consortium is located in a rural region of east central Illinois serving twelve high schools, a regional vocational center, and the community college. The Tech Prep initiative is directed at grades 9-14. Over 70 business and labor partners are involved, several of whom sponsor youth apprenticeships for Tech Prep students. Although not all of this consortium's Tech Prep programs offer youth apprenticeships, many do. Tech Prep/youth apprenticeships are available in the areas of manufacturing, accounting, banking, health occupations, and food service.

The consortium sponsors a Tech Prep Student Leadership organization that prepares students to play an ambassador-like role for Tech Prep. The Leadership program provides special training in communications and team building. In addition, faculty and peer mentoring are emphasized by this consortium. Faculty mentoring occurs at DACC so that every apprentice receives special attention and guidance from a faculty member; peer mentoring occurs when a community college student apprentice is paired with a high school student. Since 1993, this consortium has been recognized as a demonstration site for the state of Illinois for Tech Prep and Education-to-Careers (Illinois' terminology for School-to-Work).

Thus far, the consortium has been selected by the state as a demonstration site for rural Tech Prep, postsecondary Tech Prep, and youth apprenticeships. Besides the program evaluation conducted for local and state purposes, this site has engaged in benchmarking activities involving several nationally recognized Tech Prep/STWOA sites, including two of the New American High Schools, several U.S. Department of Education demonstration sites, and two of the Parnell Tech Prep Award winners. In 1996, this site was selected to pilot the School-to-Work audit procedure conducted by the Gallop Organization for the Center on Occupational Research and Development (CORD) in Waco, Texas.

Consortium: **Miami Valley Tech Prep Consortium**

Coordinator: Bonnie Bensonhaver
Sinclair Community College
444 W. Third Street, 12-201
Dayton, OH 45402-1460
(937) 449-5146
Fax: (937) 449-5164

Profile:

The Miami Valley Tech Prep Consortium is headquartered at Sinclair Community College in Dayton, OH. This consortium is located in an urban area, but the large geographic region served is suburban and rural as well. Besides the community college, eight vocational education planning districts (involving 64 comprehensive high schools) are part of the consortium. Over 100 businesses (manufacturers, automotive dealers, hospitals) are engaged as well.

This consortium is noted for its efforts to coordinate Tech Prep and STWOA through the dedicated use of an advanced-skills curriculum where students progress to higher levels of competence in academic and technical subjects at both the secondary and postsecondary levels (without the provision of dual credits). The consortium awards scholarships to most students who matriculate from the secondary to postsecondary level in a 2+2 curriculum sequence (grades 11-14). The University of Dayton participates in the consortium, offering students the opportunity to complete the final two years of college with a baccalaureate degree.

This consortium has received state and national recognition, most notably the 1996 Parnell Tech Prep Award of the American Association of Community Colleges (AACC). Data collection is extensive, due partly to the consortium's selection as one of ten sites for the national evaluation of Tech Prep conducted by Mathematica Policy Research, Inc. The consortium also piloted the School-to-Work audit for the Gallop Organization and CORD. Since 1995, the site has provided data for the Ohio Tech Prep evaluation, one of the most extensive state-level evaluations conducted in the nation (Bragg, 1997a). Ohio's evaluation of Tech Prep is conducted by MGT of America, Inc., of Tallahassee, Texas.

Consortium: **Golden Crescent Tech Prep/School-To-Work Partnership**

Director:
Roger Johnson
2200 E. Red River
Victoria, TX 77901
(512) 572-6459
rjohnson@vc.cc.tx.us
Fax: (512) 572-6439

Profile:

The Golden Crescent Tech Prep/School-to-Work Partnership is headquartered at Victoria College in Victoria, Texas. Like many Texas partnerships, the region served by this partnership is expansive and primarily rural. It involves nearly forty high schools or independent school districts (ISDs) directly, and another twenty high schools or ISDs outside of its region. Since passage of STWOA, this consortium has developed a governance structure and supporting policies to fully combine Tech Prep and STWOA activities.

Utilizing the curriculum structure required by the state of Texas, the Partnership has defined seven Tech Prep pathways that are approved by the Texas Higher Education Coordinating Board. These pathways are offered in such areas as electronics/ instrumentation advanced technology, associate degree nursing, and microcomputer technology. Dual credit is a key feature of articulation agreements worked out between the area secondary schools and Victoria College, and over twenty high school vocational-technical courses provide college credit. Although not the recipient of national acclaim, the evaluation process conducted by this local consortium is as extensive as any site in this study.

Under the direction of the partnership's full-time coordinator, Roger Johnson, a database is maintained of all participants in Tech Prep/STWOA since the earliest days of the local Tech Prep consortium's formation in 1991-1992. Much of the data is collected using a "Student Enrollment/Intent Form" filled out by students when they enroll in high school classes and these forms are sent to the partnership's office on the Victoria College campus. Annual follow-up surveys are conducted with 20% of all Tech Prep high school graduates. Besides the student data, information collected by the partnership addresses administrative and curricular concerns, including documenting the number of state-approved pathways and the number of active high school articulated courses available in each participating high school.

Consortium: **The Hillsborough School District/Community College Tech Prep Consortium**

Coordinator: Carole Swineheart
Technical and Career Education Offices or
Division of Program Services
5410 N. 20th Street
Tampa, FL 33610
(813) 231-1869
Fax: (813) 231-1882

Profile:

The Hillsborough School District/Community College Tech Prep Consortium is located in a large and growing metropolitan area in central Florida. Thus far, twenty-six different programs of study have been articulated between Hillsborough Community College and the fifteen comprehensive high schools, one technical high school, one alternative high school, and several adult vocational centers that feed students into the college. At the secondary level, the school district of Hillsborough County has designated several courses of study that have a Tech Prep focus, including the *Tech Prep* course of study where students take appropriate community college preparatory courses, plus applied technical courses; the *College/Tech Prep* course of study where students meet College Prep and Tech Prep requirements; and the *Florida Academic Scholars/Tech Prep* course of study where students take specific academic course requirements along with Tech Prep to qualify for college scholarships.

In 1997, this consortium received national acclaim when it won the Parnell Tech Prep Award from the AACC. The consortium's extensive use of evaluation was one reason given for the award. As a participant in Florida's evaluation of Tech Prep and STW, this site has provided leadership statewide in student outcomes assessment. (Like Ohio, Florida is noted for having one of the most extensive evaluation processes in the nation. It is one of only a few states that has combined Tech Prep and STWOA into one assessment process.) Utilizing the expertise of the Hillsborough School District and the Hillsborough Community College, the consortium has been able to track students from the secondary to postsecondary level, often examining academic performance in core subjects such as mathematics and English.

Consortium: **Mt. Hood Regional Cooperative Consortium**

Coordinator: Jim Schoelkopf
Work & Educational Opportunities
Mt. Hood Community College
26000 SE Stark Street
Gresham, Oregon 97030
(503) 667-7602
schoelkj@mhcc.cc.or.us
Fax: (503) 667-7390

Profile:

The Mt. Hood Regional Cooperative Consortium is headquartered at Mt. Hood Community College in Gresham, Oregon. Located in a suburb of Portland, Oregon, this consortium serves seven district high schools as well as Mt. Hood Community College. The consortium has a long history with Tech Prep, having started such curricula nine years ago, which has contributed to its selection as a national demonstration site for Tech Prep for the U.S. Department of Education in the early 1990s. The consortium was also one of the earliest winners of the Parnell Tech Prep Award from AACC. To date, Mt. Hood Community College has articulated 13 professional/technical areas with its feeder high schools. It serves over 30,000 students each year, one-third of whom are graduating high school seniors from inside the district.

A major secondary school partner, Reynolds High School, consistently matriculates 35% of its graduates to Mt. Hood Community College, and has a particularly strong Tech Prep/School-to-Career initiative in the career pathways of business management systems, industrial and engineering, and natural resource systems. Currently, several high schools in the consortium are involved in whole-school reform. Noteworthy among these is the aforementioned Reynolds High School. Reynolds has moved aggressively to changing the learning environment by re-organizing around four houses or families, named after the mountains that surround the community—Mt. Adams, Mt. Hood, Mt. St. Helens, and Mt. Jefferson. Goals of the house organization include assisting students in achieving academic and career goals, supporting students in making successful transitions, assisting students in meeting Certificate of Initial Mastery (CIM) standards, and integrating instruction that connects learning to real-world application.

As a U.S. Department of Education Demonstration site for Tech Prep, this consortium contracted with Northwest Regional Educational Laboratory (NWREL) to conduct several program evaluations. Although these evaluations have been useful to the consortium, the chief institutional researcher for Mt. Hood Community College, Dan Walleri (1994), has pointed out that more evaluation is needed. Walleri stated, "an analysis of transcripts is needed to understand and evaluate continuity in the Tech Prep curriculum and identify which courses are proving most difficult once the student continues at the College" (p. 3).